DECEMBER 19, 1931

Railway Age

FOUNDED IN 1856

Merry Christmas

—and Best Wishes for the Coming Year

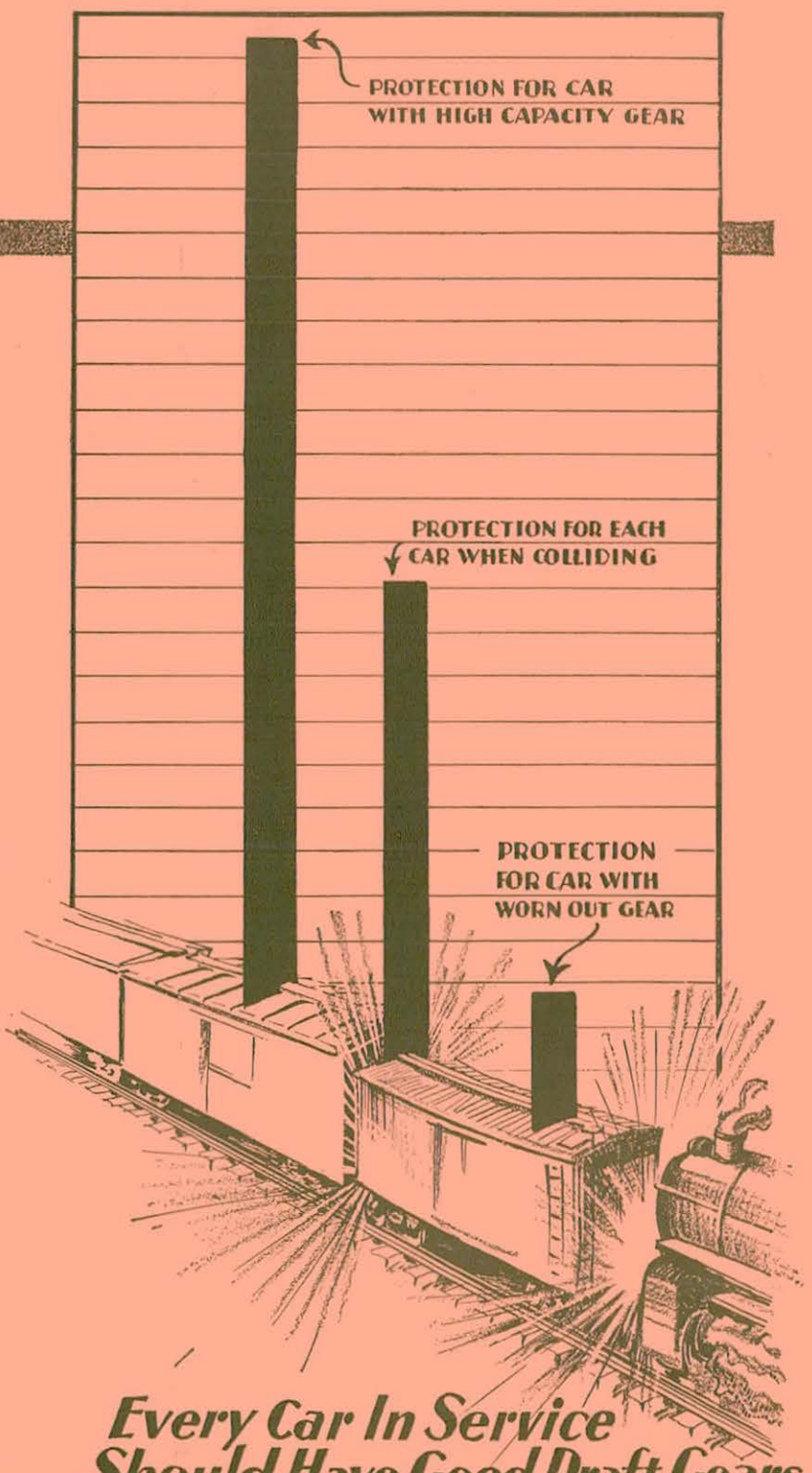
Simmons-Boardman Publishing Company

GENEVA COLLEGE LIBRARY
No.
BEAVER FALLS, PA.

WHEN ONE DRAFT GEAR IS CALLED UPON TO DO THE WORK OF TWO

When two cars come together, the protection they get is the sum of the capacities of the two draft gears which come into action.

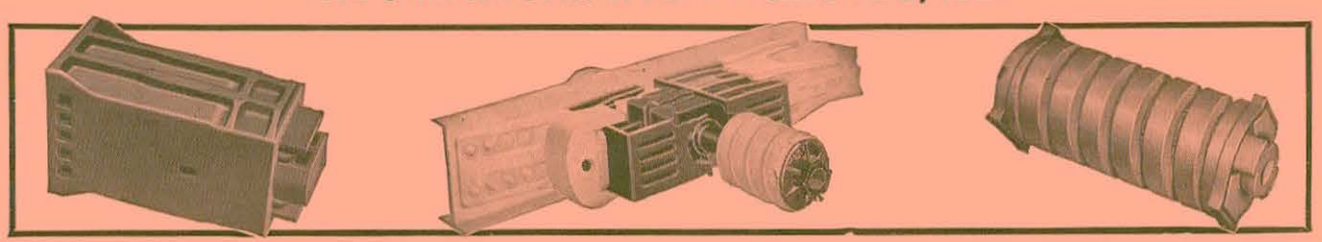
If one of these gears has little or no capacity, the other gear is called upon to do the work of two. Consequently, when the capacity of the good gear is reached, each car is getting only about half the protection it should have.


PROTECTION FOR CAR WITH HIGH CAPACITY GEAR
PROTECTION FOR EACH CAR WHEN COLLIDING
PROTECTION FOR CAR WITH WORN OUT GEAR

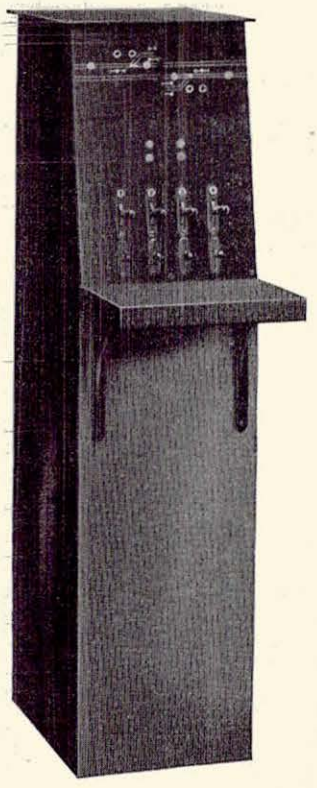
Every Car In Service Should Have Good Draft Gears

CARDWELL-WESTINGHOUSE CO.

332 S. MICHIGAN AVE. » » CHICAGO, ILL.



Published weekly by Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa. Entered as second class matter, March 9, 1928, at the Post Office at East Stroudsburg, Pa., under the act of March 3, 1879.
Address communications to 30 Church St., New York City.



CONTROL MACHINE

REDUCED OPERATING REVENUES NECESSITATE REDUCTIONS IN OPERATING EXPENSES • •

REDUCE OPERATING COSTS

by ELIMINATING UNNECESSARY TONNAGE TRAIN STOPS •

Economical operation requires heavy-tonnage trains at higher speeds but, as the cost of starting and stopping heavy-tonnage trains increases greatly, it is evident that *Heavy-Tonnage Trains Must Be Kept Moving with a Minimum Number of Stops.*

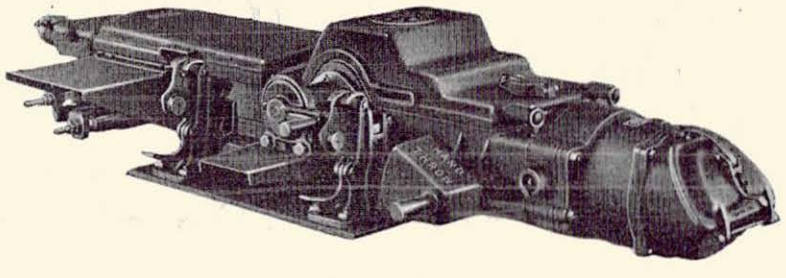
Numerous unnecessary stops at passing sidings, junctions, ends of double track, crossings and other outlying switches can be easily eliminated by means of simple remote-control installations—a control machine at nearest operator's station, electric switch operating mechanisms at switches and color-light signals to direct train movements.

Hundreds of remote control installations are showing big returns on the investment and helping materially to reduce operating expenses.

Our engineers are at your service without obligation.

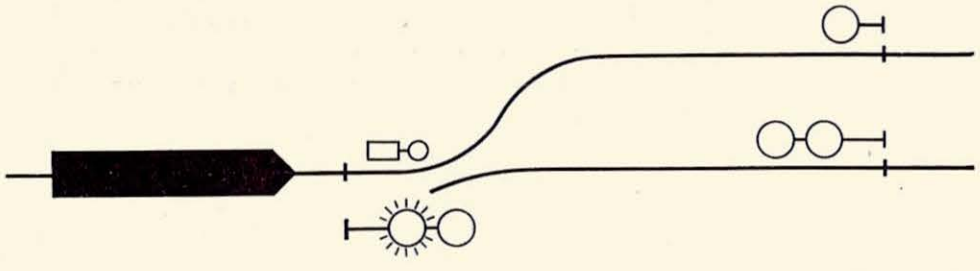
COLOR-LIGHT SIGNAL

ELECTRIC SWITCH MACHINE



Remote control installations are the basis of Centralized Traffic Control — the ultimate system—and can easily be combined into a ATC System when desired.

PASSING-SIDING SWITCH. TONNAGE TRAIN ABOUT TO ENTER PASSING SIDING ON SIGNAL INDICATION.



GENERAL RAILWAY SIGNAL COMPANY

ROCHESTER, N. Y. A-869

New York Chicago St. Louis

Affiliated Companies' Offices: Montreal London Paris Tokyo Barcelona Melbourne Calcutta Buenos Aires

GRIFFIN
WHEEL COMPANY

SINGLE PLATE
CHILLED TREAD CAR WHEELS

Deep, uniform wearing chill on GRIFFIN SINGLE PLATE WHEELS guarantees to the user longer life and negligible removals for worn through chill.

SAFEST AND MOST ECONOMICAL FOR ALL CLASSES OF FREIGHT AND EXPRESS SERVICE

The Food Supply of The Nation is Carried on Chilled Tread Wheels

PLANTS

Chicago
Boston
Cleveland
Detroit
Cincinnati
Council Bluffs
Kansas City
St. Paul
Denver
Salt Lake City
Los Angeles
Tacoma

Published every Saturday by the Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa., with executive offices at 30 Church Street, New York

All communications should be addressed to the New York office, 30 Church Street, or to the Chicago office, 105 West Adams Street

SAMUEL O. DUNN, *Chairman of Board*
HENRY LEE, *President*
LUCIUS B. SHERMAN, *Vice-Pres.*
CECIL R. MILLS, *Vice-Pres.*
ROY V. WRIGHT, *Vice-Pres. and Sec.*
FREDERICK H. THOMPSON, *Vice-Pres.*
GEORGE SLATE, *Vice-Pres.*
ELMER T. HOWSON, *Vice-Pres.*
F. C. KOCH, *Vice-Pres.*
JOHN T. DEMOTT, *Treas.*

CHICAGO
105 West Adams St.

WASHINGTON
17th and H. Streets, N. W.

CLEVELAND
Terminal Tower

SAN FRANCISCO
215 Market St.

Editorial Staff

SAMUEL O. DUNN, *Editor*
ROY V. WRIGHT, *Managing Editor*
ELMER T. HOWSON, *Western Editor*
H. F. LANE, *Washington Editor*

B. B. ADAMS
C. B. PECK
W. S. LACHER
ALFRED G. OEHLER
F. W. KRAEGER
E. L. WOODWARD
J. G. LYNE
J. H. DUNN
D. A. STEEL
R. A. DOSTER
JOHN C. EMERY
MARION B. RICHARDSON
H. C. WILCOX
NEAL D. HOWARD
CHARLES LAYNG
GEORGE E. BOYD
WALTER J. TAFT
GARDNER C. HUDSON
M. H. DICK
S. R. HAMILTON

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.)

Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free; United States and Mexico, $6.00; Canada, including duty, $8.00. Foreign countries, not including daily editions, $8.00.

Single copies, 25 cents each.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name Registered U. S. Patent Office

Vol. 91 December 19, 1931 No. 25

In This Issue

Containers Save Money for Shippers and the Railroads . . . . . Page 928

The twenty-fourth article in the Operating Economy Series, discussing the problem now facing the railroads, of how to effect the transfer of freight, without rehandling and at a minimum of expense, from the inflexible railway car to the trucks which play an essential part in the transportation of many rail shipments.

Some Sections Succeed in Stimulating Passenger Travel 933

A survey of the results of recent experiments with reduced passenger fares, with particular attention to the record breaking business obtained by the Southern Pacific through the use of modern merchandising methods.

New Process Retards Rail Batter 939

A description of the method of heat treating of rail ends developed on the Chicago, Milwaukee, St. Paul & Pacific, which has resulted in a definite prolongation of rail life.

EDITORIALS

The Labor Organizations' Program 925
Encouraging Features of the I. C. C.'s Report 926
Passenger Traffic Picture Not All Dark 927

GENERAL ARTICLES

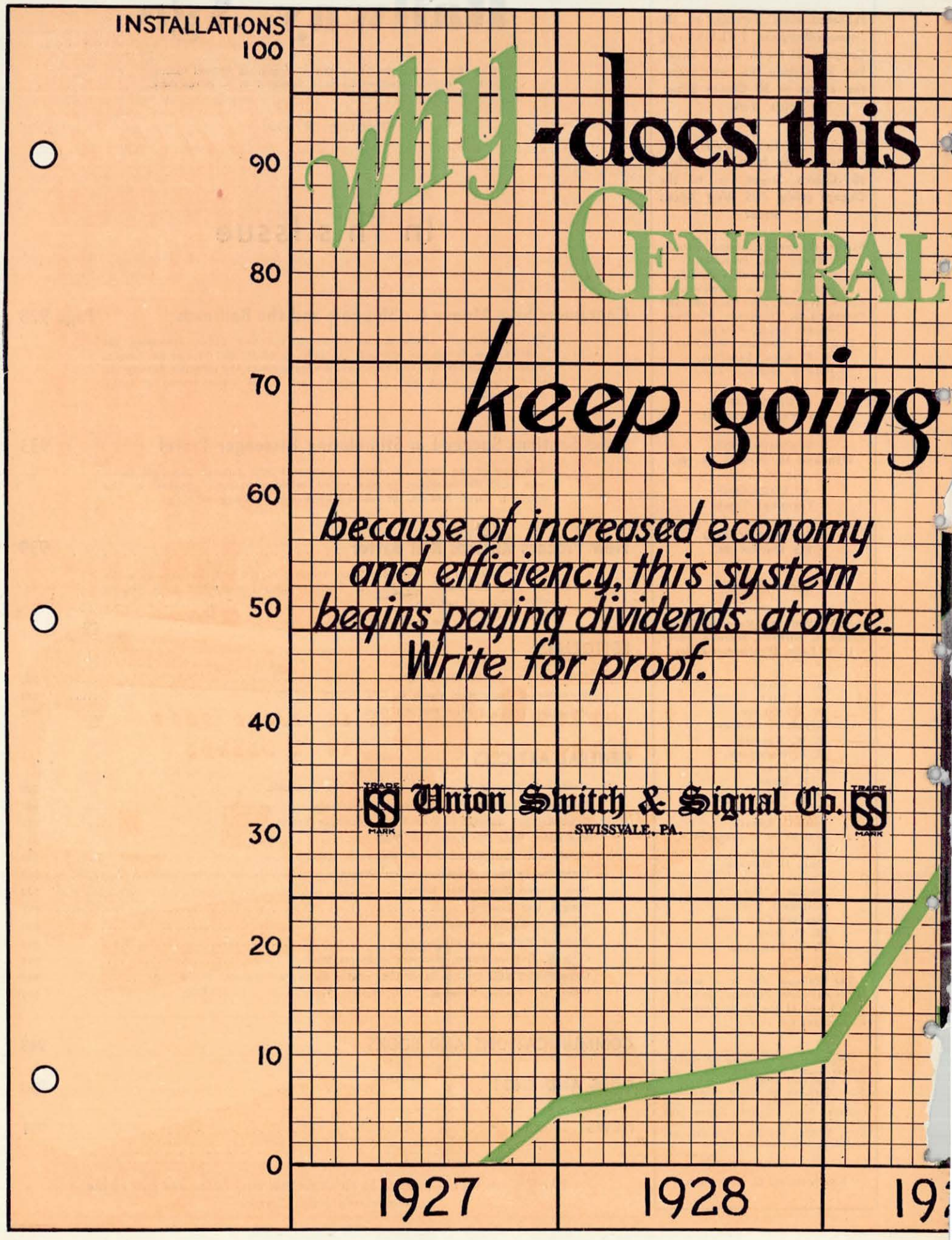
Containers Save Money for Shippers and the Railroads 928
All-Steel Warehouse Protects Banana Shipments 931
Some Sections Succeed in Stimulating Passenger Travel 933
Executives Vote For Loan Pool Plan 935
Development Men Told Railroads' Future Is Sound 936
Employees Propose Negotiations on Wages 937
New Process Retards Rail Batter 939
Freight Car Loading 941
Bureau of Safety Annual Report 942
Proposed Railroad Legislation 943
C. & E. I. Uses Power Machines in Stores Work 944
Centralized Traffic Control Saves Time on the Santa Fe, by D. W. Fuller 945
"Box-Car" Trailers Speed G. T. W. Freight Service 947

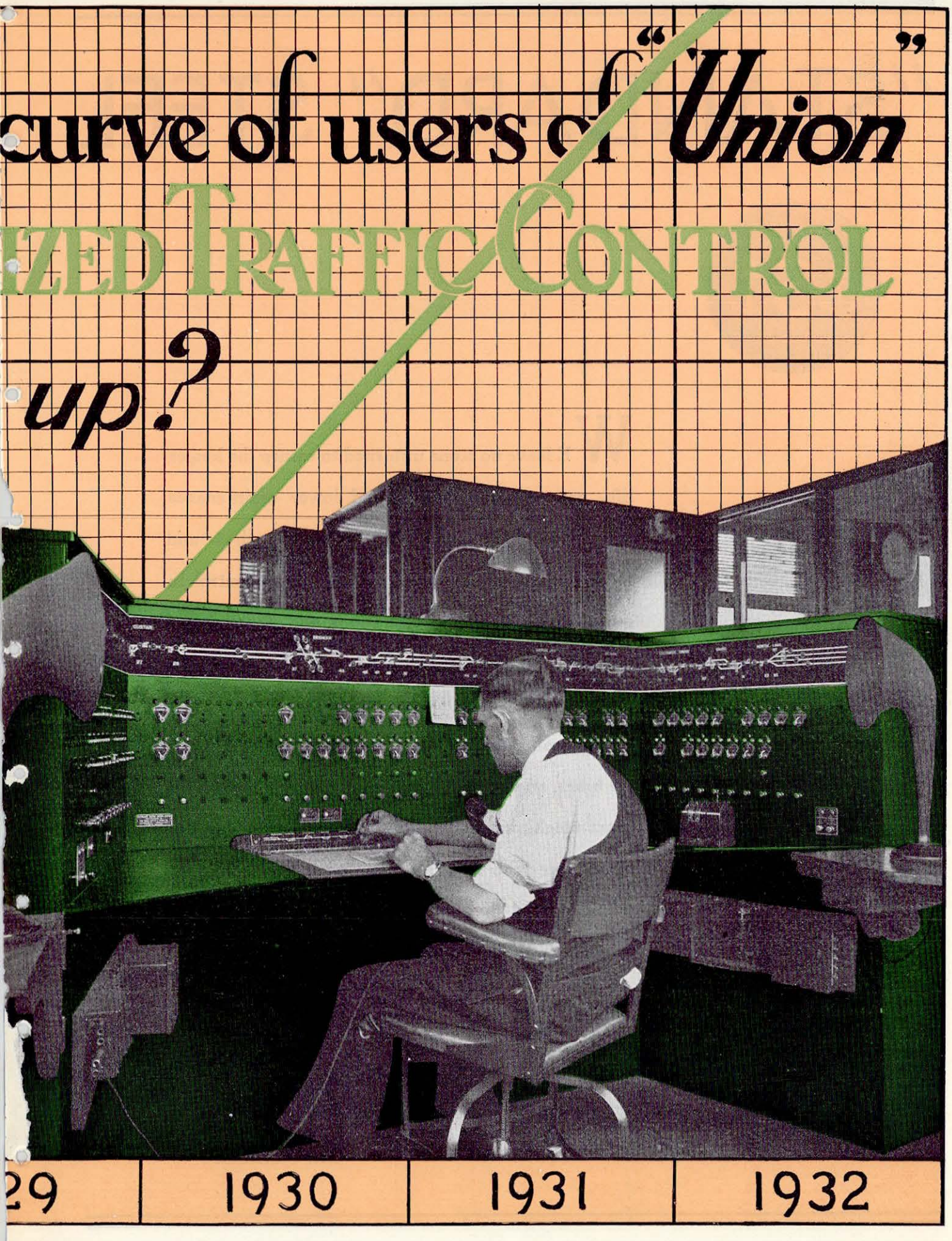
COMMUNICATIONS AND BOOKS 948

ODDS AND ENDS 950

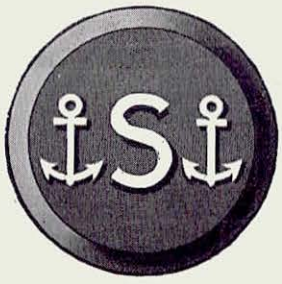
NEWS 951

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service


INSTALLATIONS
100
90
80
70
60
50
40
30
20
10
0
why-does this
CENTRAL
keep going
because of increased economy and efficiency, this system begins paying dividends at once. Write for proof.
Union Switch & Signal Co.
SWISSVALE, PA.
1927
1928


curve of users of "Union"
IZED TRAFFIC CONTROL
up?
29
1930
1931
1932

"STANDARD" STEEL



STANDARD PRODUCTS

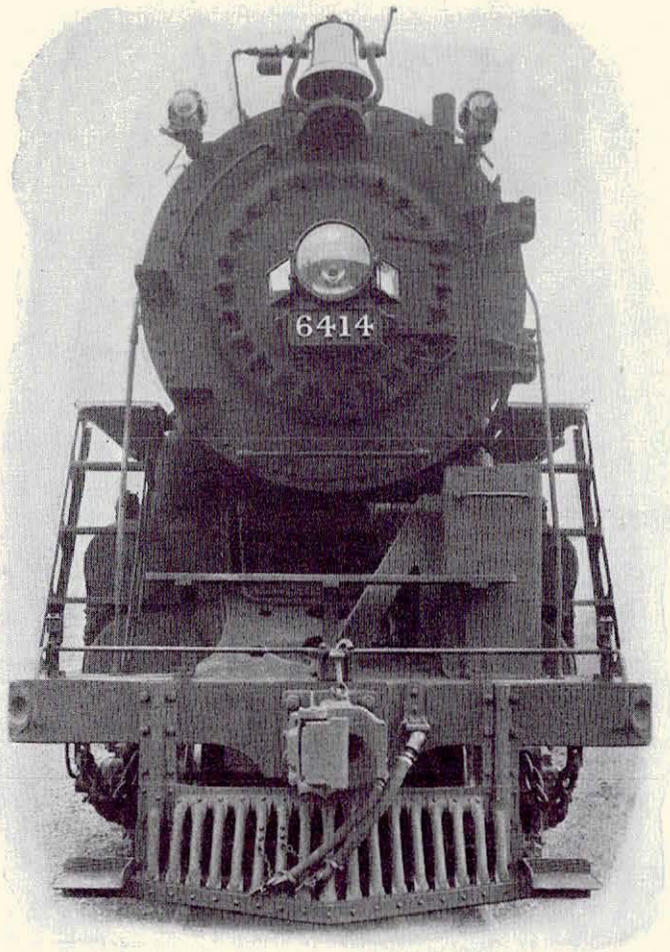
Tires,
Springs, Axles
Wrought Steel Wheels
Steel Tired Wheels
Carbon and Alloy Steel Forgings
Steel Castings,
Billets

WE leave no stone unturned to assure the longer life, greater dependability and lower maintenance cost of locomotive and car wheels, tires and forgings made of "Standard" steel. We control in our own plant all the operations and processes of manufacture from raw material to the completed product. This includes the making of the steel, the cooling and solidification of the billet, the forging of the billet, and the reforging, heat treatment and final exact machining and testing. Only in this way can we be sure that all "Standard" parts are worthy of the name and the confidence they enjoy with their many eminent and satisfied users.

STANDARD STEEL WORKS COMPANY

GENERAL OFFICES & WORKS: BURNHAM, PENNA.

NEW YORK PHILADELPHIA CHICAGO PORTLAND ST. LOUIS SAN FRANCISCO AKRON



Look Forward

VERY soon the railroads will be compelled to return to active service many locomotives built ten, twenty or more years ago, unless such locomotives are shortly replaced by Strictly Modern Units, designed and equipped to meet present-day conditions.

With its ability to save fuel, develop increased power, and reduce maintenance expense, the Strictly Modern Locomotive is the outstanding revenue earner. Railroads cannot afford to ignore the many advantages offered by this up-to-date motive power.

LOOK FORWARD—NOW is the time to provide for greater economy, higher operating efficiency and improved service to travelers and shippers.

It takes Modern Locomotives to make money these days!

THE BALDWIN LOCOMOTIVE WORKS 1831 1931

THE BALDWIN LOCOMOTIVE WORKS

PHILADELPHIA

Wooden "Palace Cars" were the "last word" in 1880

Although early designers were able to incorporate extreme luxury in appointments and fittings, they lacked the materials that today make possible the comfort and safety of the modern steel-insulated car.

Hidden within the walls and roof of this club car, Johns-Manville Steel Car Insulation deadens operation noises and reduces heat transmission through the structure to a minimum.

Today steel cars have added comfort and safety . . . lowered accident losses for the modern railroad . . .

THE DEVELOPMENT of the modern steel car with its increased comfort and safety could not have been effected without scientific insulation.

Johns-Manville through the development of special steel car insulating materials and methods has contributed substantially to this very important step in railroad progress.

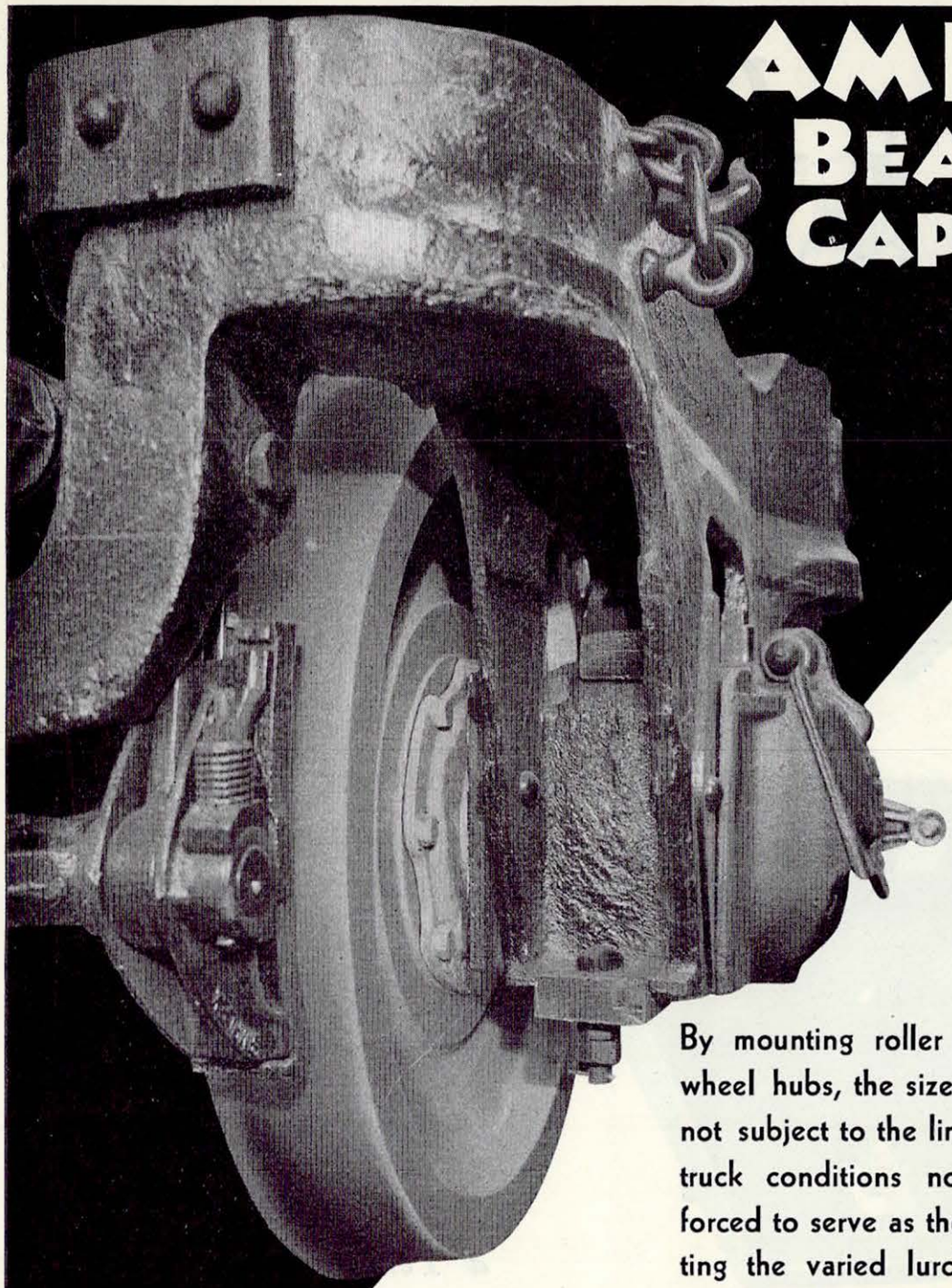
Today, thousands of steel cars, insulated by Johns-Manville, are adding their quota of comfort, safety and savings to the service of transportation. Johns-Manville, 292 Madison Avenue, New York City.

Johns-Manville

JOHNS-MANVILLE JM PRODUCTS

Service to Transportation

AMPLE BEARING CAPACITY



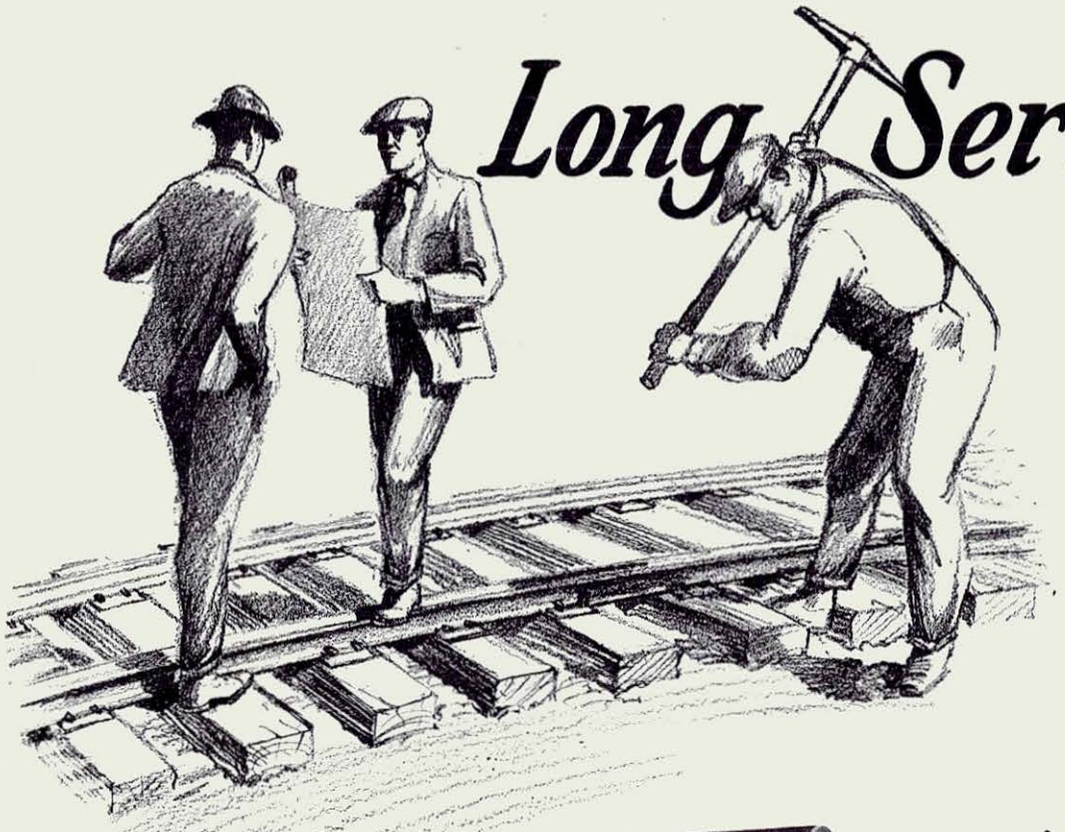
By mounting roller bearings within the wheel hubs, the sizes of the bearings are not subject to the limitations imposed by truck conditions nor are the bearings forced to serve as the means of transmitting the varied lurching motions of the trucks to the wheels and axles » » » » Instead, the hub mounting of the bearings insures the operation of the bearings under conditions most favorable to them » » » The size of the bearings being that best suited to the loads carried » » » » » »

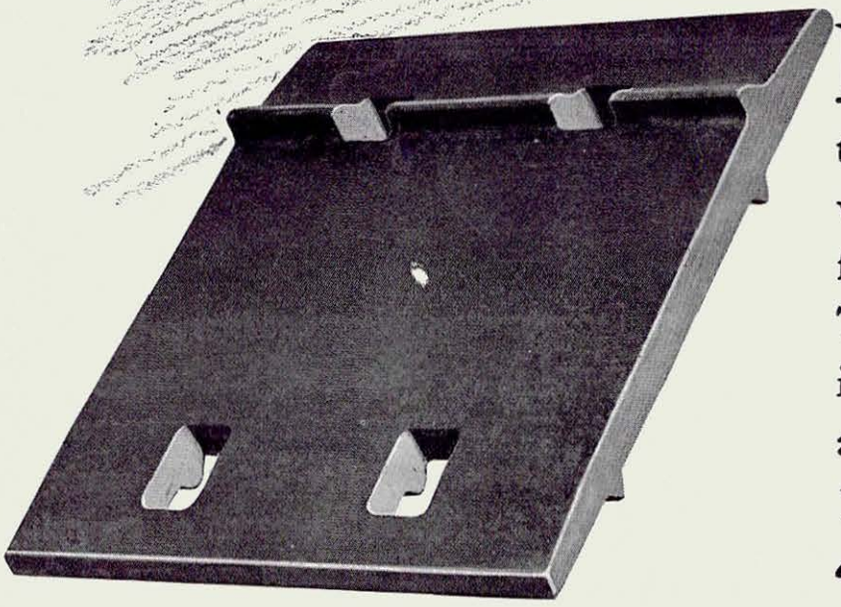
AMERICAN STEEL FOUNDRIES ROLLER BEARING UNITS

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

Long Service!





Long service is the first requisite of a good tie plate. Couple Service with Safety and Performance and select a Tennessee design—there is one to meet your ideas and requirements . . .

You Can't Go Wrong With a Tennessee Tie Plate

Tennessee Coal, Iron & Railroad Co.

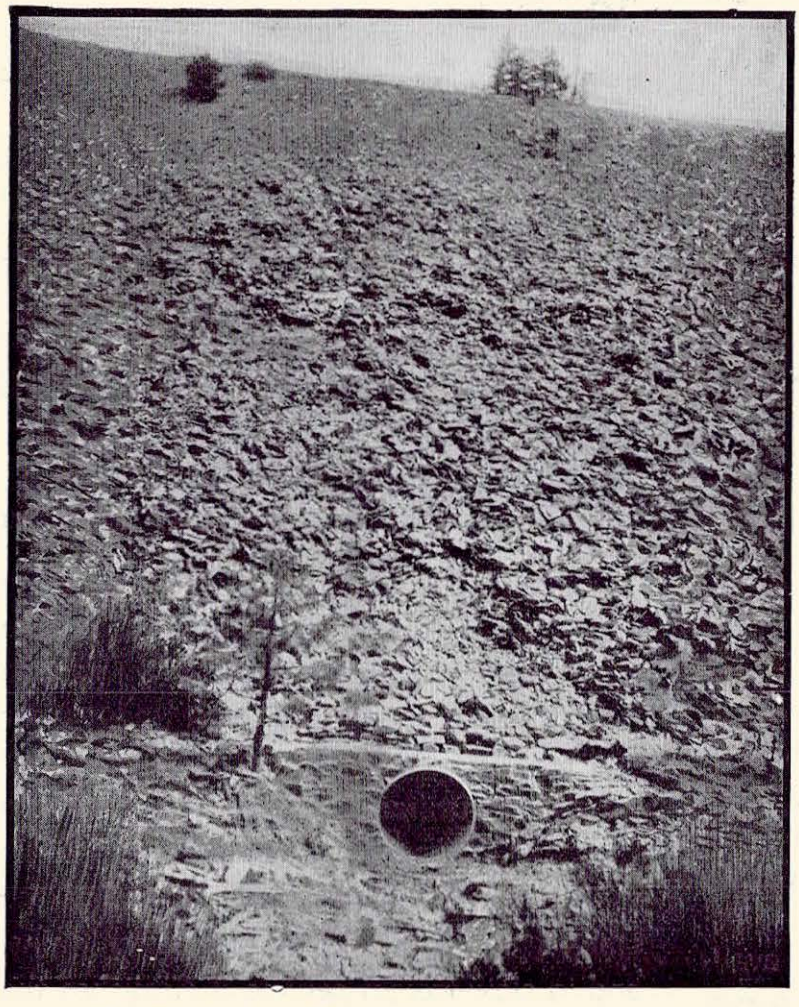
Subsidiary of United States Steel Corporation

General Offices: Brown-Marx Building, Birmingham, Alabama

TENNESSEE TIE PLATES

25 *years of service to date . . . the unequaled Record*

ARMCO *Culverts*



This 60-inch Armco Culvert has been giving satisfactory service under a 56-foot rock fill in California since 1920.

ON this record of service under America's railroads you may choose with confidence culverts of pure iron Armco Corrugated Pipe. Their longer life means greater economy for you.

Officially, by the test of time. Nature has OK'd Armco Culverts as the longest lasting product of its kind in use.

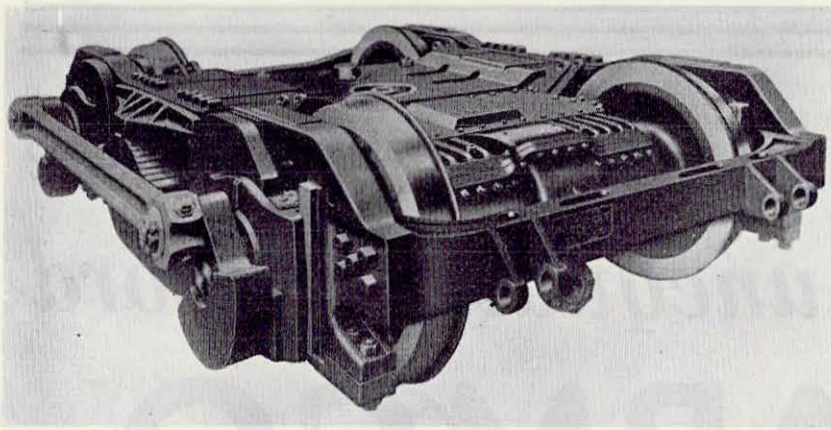
Since 1906, Armco Culverts have satisfactorily served the railroads of America, keeping the roadbeds, dry, firm and safe for heavy, fast moving traffic.

Factual data on the use of Armco Culverts under various railroad conditions will be sent on request.

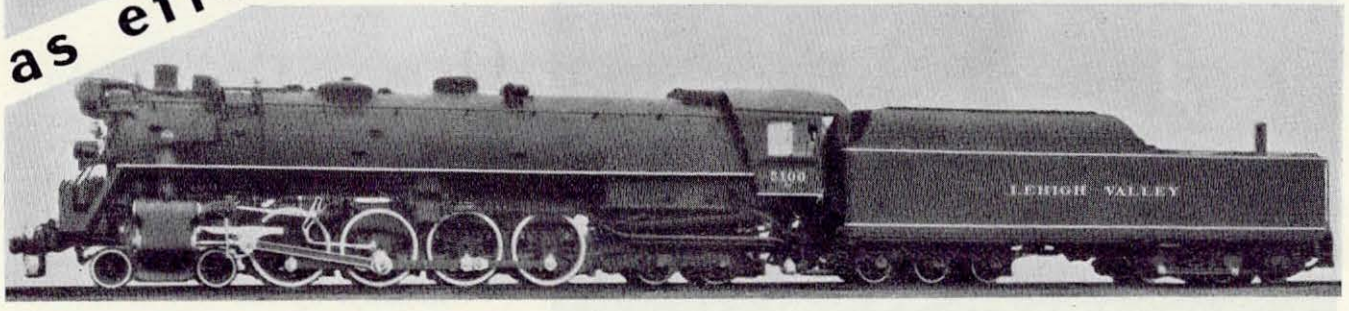
Armco culverts and drains are manufactured from the Armco Ingot Iron of The American Rolling Mill Company and always bear its brand.

ARMCO CULVERT MANUFACTURERS ASSOCIATION

Middletown, Ohio



The AUXILIARY makes it as effective on the H-E-A-V-Y P-U-L-L as on the FAST RUN!



The installation of a Bethlehem Auxiliary Locomotive under the tender of a high-wheel engine provides a motive-power unit that is capable of operating effectively in any kind of service that convenience or necessity may dictate. Passenger, fast-freight, slow-freight—they are all the same to the high-wheel engine equipped with a Bethlehem Auxiliary Locomotive.

With this one type of locomotive available for all classes of service, capital investment in motive power may be very much reduced, and many operating economies realized.

The added tractive force provided by the Auxiliary makes the high-wheel engine much more effective in fast-freight service by enabling it to start, without undue wear and tear on equipment, trains of sufficient weight to utilize the full power of the engine at road speed. Similarly, in passenger service the Auxiliary greatly facilitates the starting and acceleration of heavy trains, and in slow-freight service it furnishes the reserve tractive force needed for starting, getting over ruling grades, or taking care of other unusual conditions.

BETHLEHEM STEEL COMPANY
General Offices: Bethlehem, Pa.

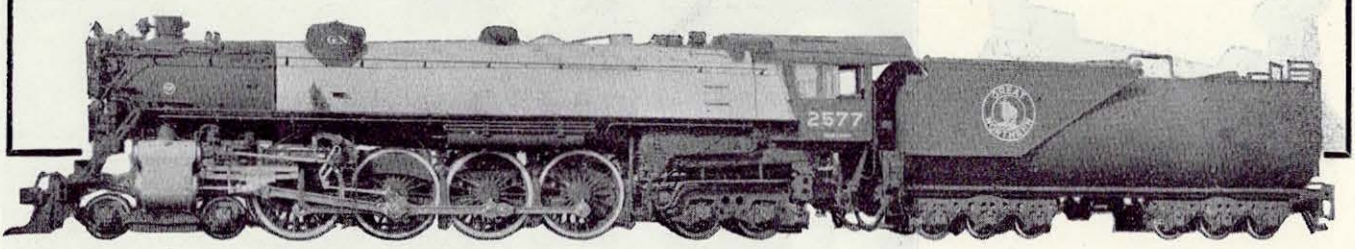
District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.

Pacific Coast Distributor: Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu.

Export Distributor: Bethlehem Steel Export Corporation, 25 Broadway, New York City.

BETHLEHEM

NICKEL STEEL *boiler plates for 14 new* GREAT NORTHERN *locomotives...*



...because they "perform better longer"

Great Northern locomotive with Nickel Steel boiler plate, mfd. by THE BALDWIN LOCOMOTIVE WORKS, Philadelphia, Pa. In all cases Nickel Steel boiler plates used on these 14 locomotives exceeded the following minimum specifications:

Ultimate Tensile Strength	75,000 p. s. i.
Yield Point	48,000 p. s. i.
Elongation in 8"	23%

Dependable materials are the best assurance of dependable performance

FOURTEEN new locomotives to be used in high speed passenger service have been built by Baldwin for the Great Northern Railroad. The Nickel Steel plate for the boilers of these locomotives, operating under a working pressure of 225 pounds, was furnished by the Otis Steel Company.

The operating experience of many roads, as well as exhaustive laboratory tests, demonstrate beyond question the superiority of Nickel Steel plate for boiler construction. Nickel Steel provides high strength with light weight and insures freedom from aging and embrittlement at high operating temperatures. In high speed, heavy duty railroad service, Nickel Steel "performs better longer".

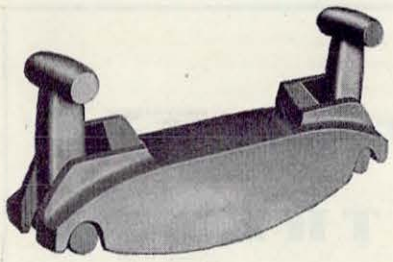
THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N. Y.

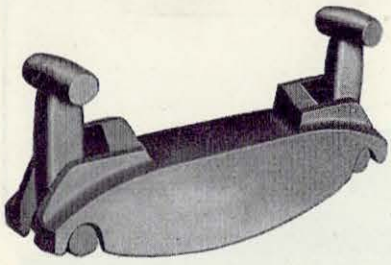
Miners, refiners and rollers of Nickel. Sole producers of Monel Metal

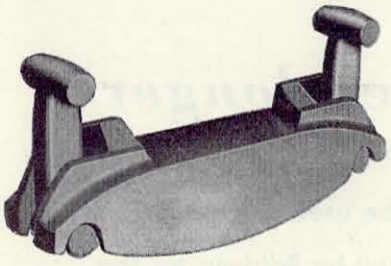
Send for our booklet "Alloy Steels in the Railroad Field."

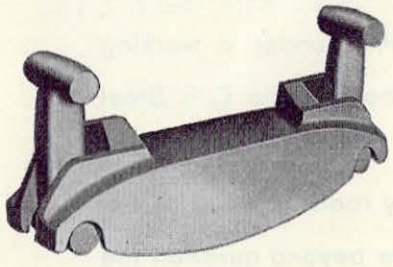
INCO NICKEL

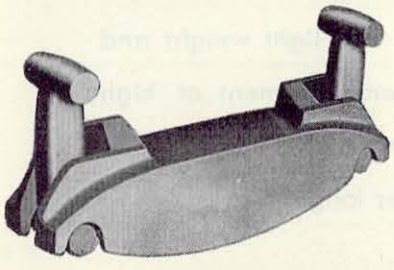
Nickel
ALLOY STEEL
PERFORMS BETTER LONGER

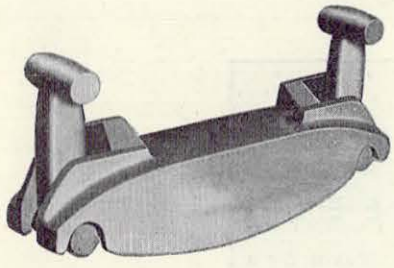


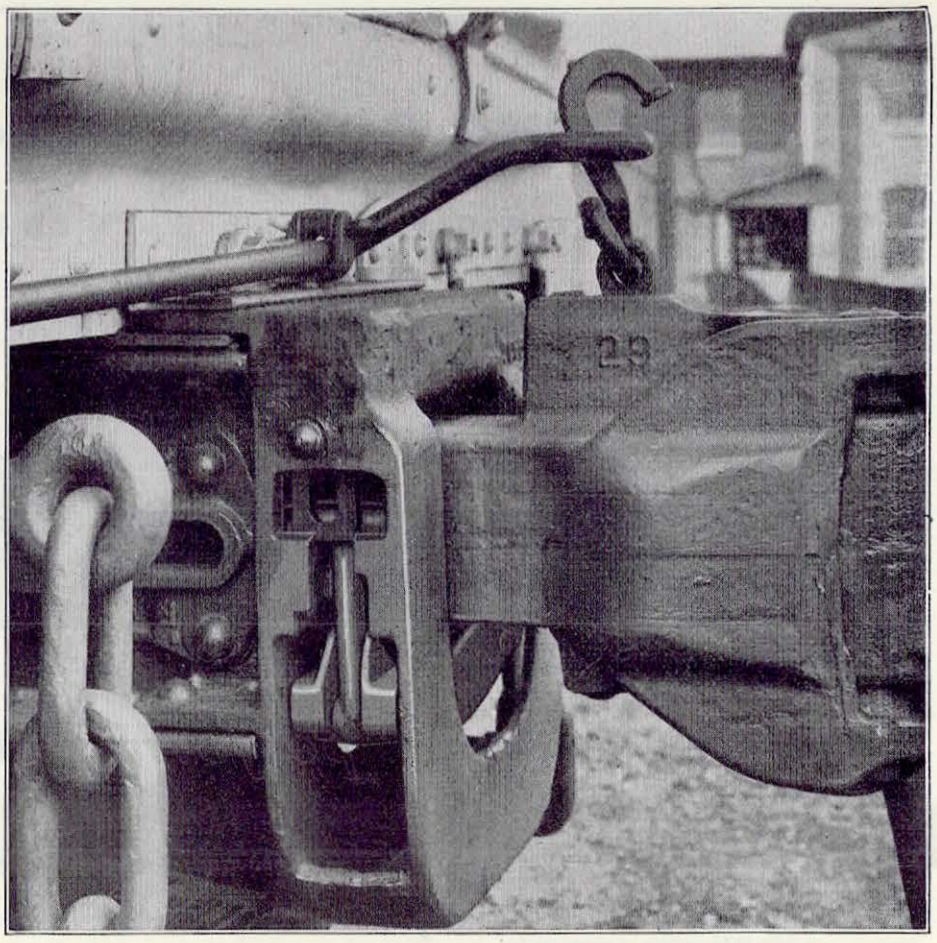










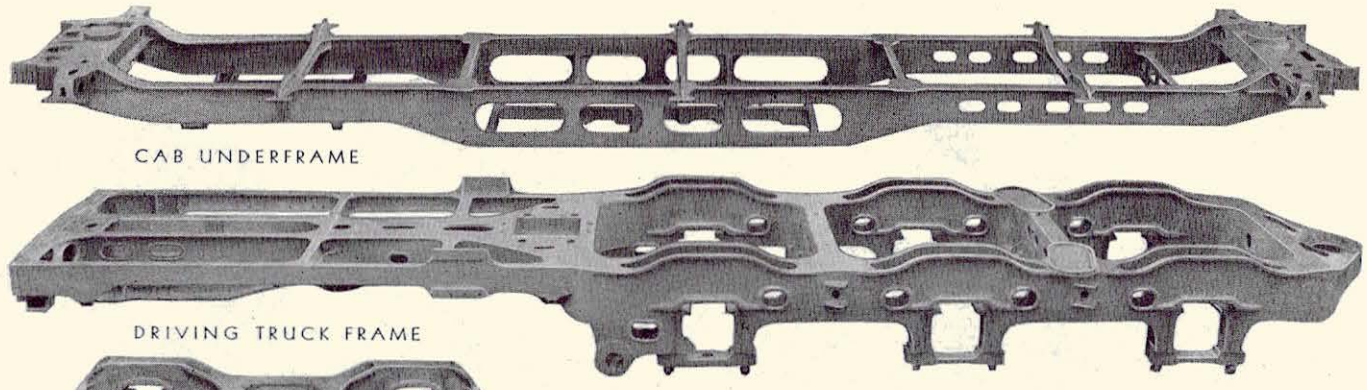


Safety First

The gravity carry iron of the Union Centering Device returns the coupler to its normal central position. This provides a safety feature well worthy of consideration.

UNION METAL PRODUCTS COMPANY

NEW YORK · CHICAGO · ST. LOUIS · WASHINGTON
RICHMOND · HOUSTON · SAN FRANCISCO · KANSAS CITY · MONTREAL



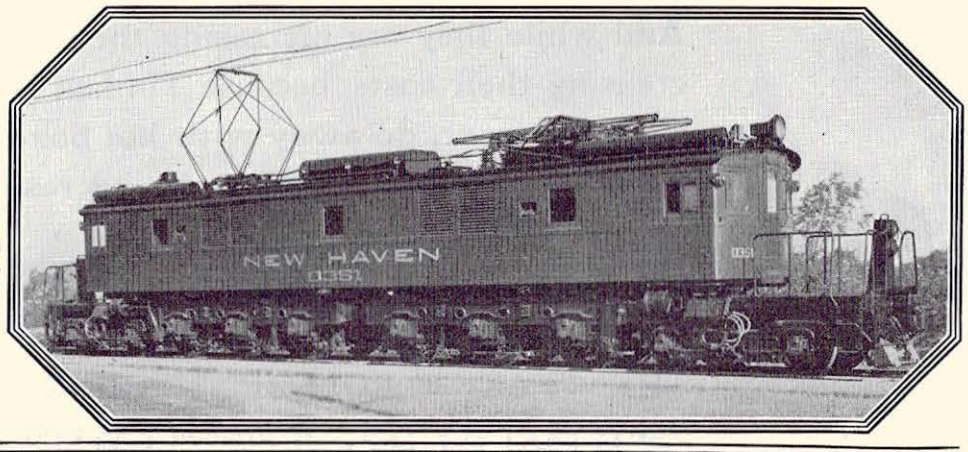
CAB UNDERFRAME

DRIVING TRUCK FRAME

GUIDING TRUCK FRAME

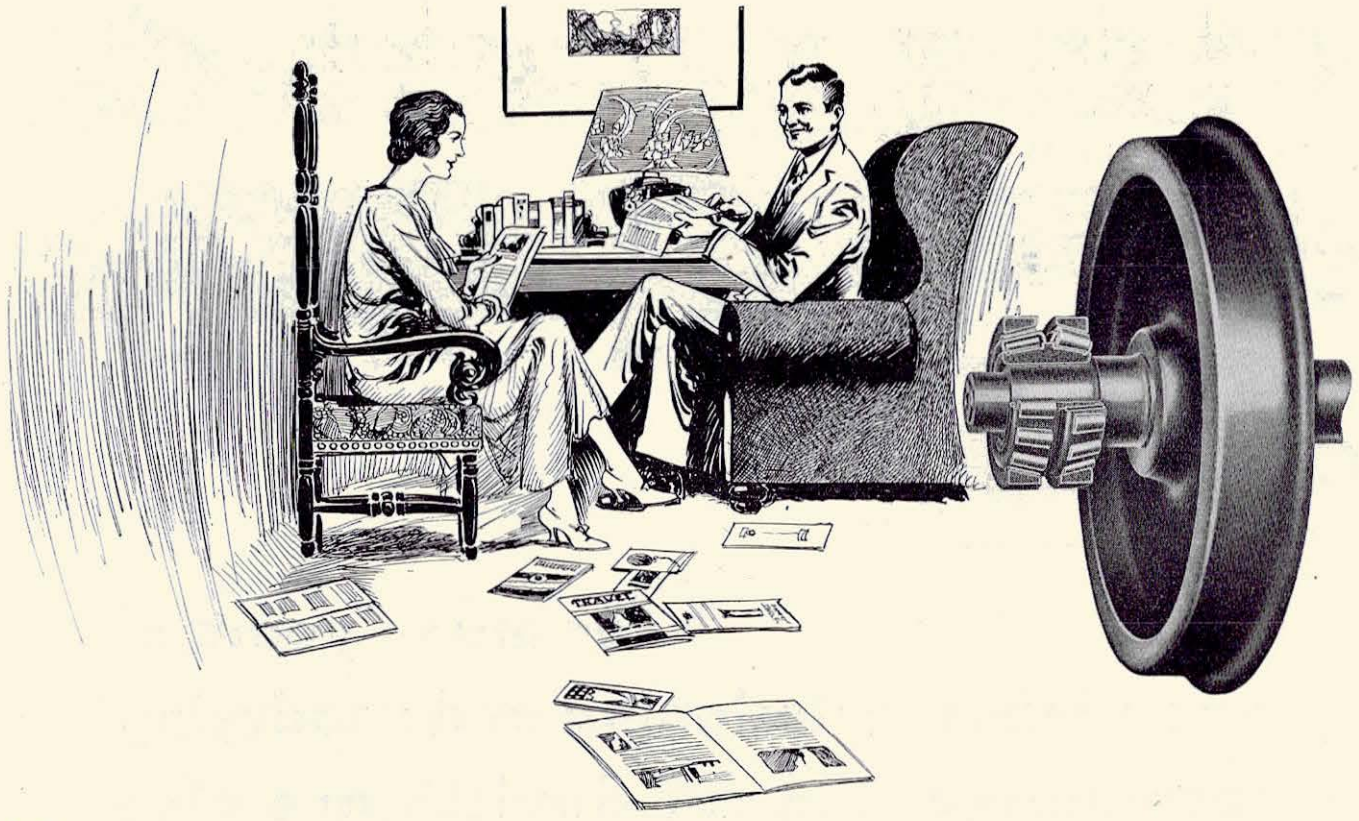
Our many years of experience in designing and producing locomotive and car devices are also making an essential contribution to *electric transportation.*

The modern electric locomotives on the New Haven have Commonwealth Cab Underframes, Driving Truck Frames and Guiding Truck Frames • • These Commonwealth one-piece Cast Steel foundations provide greater strength with less weight • • Reduce upkeep costs and make your electric locomotives more efficient.



GENERAL STEEL
CASTINGS CORPORATION
Eddystone, Pa. ~ Granite City, Ill.

COMMONWEALTH
• PRODUCTS •



Let's *travel on the*.....Limited; *it runs on* Timken Bearings.

Railroad travelers want modern roller bearing comfort, restfulness and speed, hence the increasing discrimination in favor of Timken Bearing Equipped trains.

Railroads that operate Timken-equipped trains know that this is one of their best pulling sales points, and they make the most of it in their advertising.

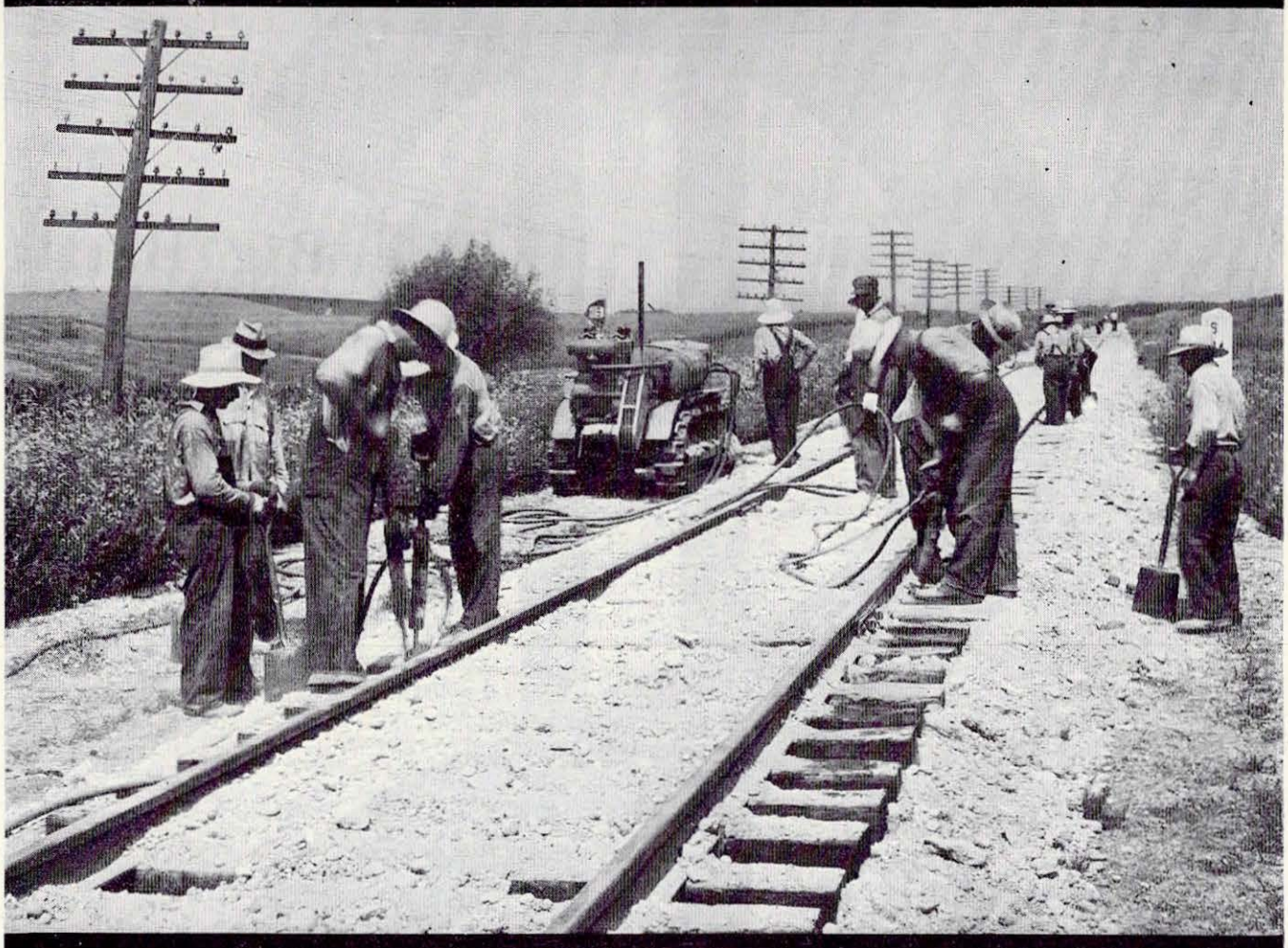
And while they are increasing their patronage, they are decreasing their costs, because Timken Bearings eliminate friction and wear, do away with hot boxes, simplify lubrication, save lubricant and reduce starting resistance 88%.

It's time you were modernizing your rolling stock with Timken Roller Bearings.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

TIE TAMPING



with a "Caterpillar"

A DAVEY Air Compressor is mounted on this "Caterpillar" track-type Tractor. The outfit goes anywhere—*on its own tracks!* It supplies the air for three tampers. It cuts costs—speeds the work—does jobs better. And it lends itself to a score of other money-saving uses. Railroad men are finding all sorts of uses for a "Caterpillar"—the 'cross-country locomotive!

Prices—f. o. b. Peoria, Illinois

TEN	$1100	THIRTY	$2375
FIFTEEN	$1450	FIFTY	$3675
TWENTY	$1900	SIXTY	$4175

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

Track-type Tractors Combines Road Machinery

(There's a "Caterpillar" Dealer Near You)

CATERPILLAR

REG. U. S. PAT. OFF.

TRACTOR

The Big Battle For Big Dollars

The dollars spent for car roof maintenance must look very big in times of reduced traffic when the margin between gross and net revenue is steadily shrinking.

Do not accept this expenditure as a necessary evil. Revert dollars of expense to dollars of profit. Equip your cars with the Universal Dry Lading Roof.

The UNIVERSAL Dry Lading Roof

is a big money saver. This is no idle claim—but a fact based on definite proof. For example. The roof maintenance over a period of 18 years on 30,000 Canadian National Cars equipped with Dry Lading Roofs amounted to $4,519.49. Less than one cent per roof per year.

The roof will outlast the car without maintenance. It does not require periodic painting. It is flexible. Will not buckle or bulge. The nine one-size and one-design parts will roof any width, length or design of house car. These mean savings—big savings. They belong to you. Get them.

Hutchins Car Roofing Company

RAILWAY AGE

The Labor Organizations' Program

The program adopted by the railway labor organizations at their meeting in Chicago last week is of very great importance. It proposes the creation of a committee representing the managements of the railways to meet with the chief executives of the labor organizations "to negotiate to a conclusion pending issues concerning unemployment and wages", and states that the labor organizations will proceed immediately to obtain from their members the necessary authority to conduct the negotiations. Specific recognition is given in the program to the fact that the railroad presidents are practically united in the purpose "of serving notice in the near future of intended changes in existing contracts reducing the rates of pay, unless the railway employees propose in lieu thereof to accept a voluntary reduction from the payrolls based on existing contracts of 10 per cent for one year."

Wage Rates and Unemployment

The mention by the labor organizations in their program of "pending issues concerning unemployment" as well as wages might be construed to mean that their representatives would agree to a voluntary reduction in wages for a year only upon conditions that it would be impossible for the railways to accept. It would appear, however, that any such interpretation of the language used would be erroneous. It is natural that the labor organizations should wish the problems of unemployment and of wage rates to be considered together.

Apparently, however, their proposals, correctly interpreted, mean that they are prepared to accept a reduction of wages upon conditions that railway managements could accept. They seem, after full consideration at their meeting in Chicago, to have decided that the present railway situation is so desparate as imperatively to demand that railway employees shall make a reasonable contribution toward remedying it, and to be prepared to make that contribution in the form of a 10 per cent reduction of wages for one year, although they hope it will be agreed that the saving in operating expenses resulting will be used to relieve unemployment as far as is consistent with meeting the extreme financial necessities of many of the railways.

If this interpretation of their program is correct, railway labor leaders and employees promise soon to deserve credit for one of the finest demonstrations of loyalty to an industry and to the welfare of the people of the United States that ever has been given by any body of men in this country. A reduction of wages sooner or later is plainly inevitable. Railway employees have a choice, however, as to how it shall be brought about.

Labor's Alternative

They could, if they so desired, insist upon the slow processes of the Railway Labor act being followed, in which case reductions certainly would be made that would not be temporary and probably would exceed 10 per cent, but they would be long delayed. Apparently, recognizing the fact that the railways are in dire immediate need, they have virtually decided to choose the alternative course of proposing co-operation with the managements so that a reduction of wages can be made in the near future when it will still not be too late to help save many railways from disaster and when it will help most effectively to revive general prosperity.

We believe that railway employees, as well as the railways and the nation, will benefit if railway employees authorize their organizations to carry out the policy apparently favored by their leaders. It is estimated that by the recent decision of the Interstate Commerce Commission in the rate case the railways will gain about $100,000,000 in revenues during the next year, and by a 10 per cent reduction in wages they would save about $215,000,000 in operating expenses, a total in excess of $300,000,000. Each railway would naturally seek to pay its fixed charges and thereby avoid bankruptcy by drawing upon the funds thus made available as far as might be necessary for this purpose. Many railways, however, as a result of the increase in revenues and reduction of wage rates, would have more money than was required to pay their fixed charges.

Reviving Employment and Purchases

Railway expenditures for both improvements and maintenance have been cut to the bone throughout

the last year, and there can be no doubt whatever that practically all the money made available by the advance in rates and the reduction of wages, in excess of what was required to pay fixed charges, would be spent for improvements and maintenance. The results would be an increase both in railroad employment and in purchases of equipment and materials from manufacturers; and these increased purchases would increase employment in the industries from which the railways buy, and thus indirectly stimulate the entire business of the country.

As has previously been pointed out in these columns, in the three months following the general reduction of wages made on July 1, 1921, the average number of employees of the railways was 110,000 greater than in the three months preceding it. Second only to the present need of the railways for money with which to pay fixed charges is their need for money to spend upon improvements and maintenance, especially the latter, and without any formal agreement, or even understanding, to that effect, most of them would be certain to spend for labor, equipment and materials practically all the funds they had available after paying their fixed charges.

Co-operation Between Managements and Employees

Confronted as railway managements and employees are upon every hand with regulation and competition tending to reduce earnings, traffic and employment, there never was a time in history when it was so essential as now for them to co-operate to protect and promote their mutual interests. If, through their co-operation, there are effected a reduction of wages and an increase of employment now when both are the most needed that they ever were, there will be demonstrated the possibility and desirability of co-operation in other ways. The competition of subsidized and unregulated means of transportation already has deprived the railways of many millions of dollars of revenues and many thousands of railway men of their employment.

Employees' Political Power

With the railways now earning less net operating income and employing fewer men than at any time within thirty years the necessity for changing the government policies that are so largely responsible for the present railway situation has become obvious and imperative. Railway employees have a political power to bring about changes in these policies which the managements do not possess. Whether the managements and employees should work separately or in co-operation to bring about such changes is a question for consideration by them, but if there should be co-operation for this and other purposes the making of a general reduction of wages at the present time by co-operation would be the best evidence that other things could be accomplished by it for the good of both the railways and their employees.

Encouraging Features of the I. C. C.'s Report

The attitude assumed by the Interstate Commerce Commission in its annual report regarding the financial situation of the railways and toward the problem of adequate earnings, and its request for wider powers over the railways in the face of its failure to wield wisely many of those it already has, while disappointing, is not particularly surprising in view of the events of recent months. There are portions of the report, however, which must be read with a great deal of satisfaction by those whose interests lie with the railways.

Particularly heartening is the reiteration in the report of the commission's attitude toward railway and highway co-ordination as expressed in the 15 Per Cent Case. The commission feels that railway and highway co-ordination is a proper and necessary step, and it appears to be eager and willing to aid even wider experiment in this direction. That its expressed opinion on this subject is no mere idle rhetoric has been shown by its refusal to suspend experimental rates which are little short of revolutionary in their import. It also, apparently, would welcome much wider experimentation in passenger service and rates, in the effort to increase the profitability of this branch of railway business.

Of equal interest to these suggestions and observations is the strong recommendation for a thoroughgoing investigation of competing forms of transportation to determine whether or not, or to what extent, they are subsidized and what legislation may be needed to put them on a basis of equality with the railways. This recommendation received able support from the President in his message to Congress and it is certainly to be hoped that it will meet with approval, and that such an investigation may be undertaken under such auspices that its findings will be assured of general acceptance.

In spite, therefore, of the Commission's reluctance to face squarely its failure to provide adequate revenues for the railways, there is nevertheless one phase of its point of view which holds out hope. And this is strengthened by the refusal of a majority of the commission to follow further the Socialism of Commissioner Eastman in his insistence on the pooling of revenues. And in particular is it encouraging to hear that, "There is greater opportunity for the exercise of initiative and enterprise in railroad operation and management than there has been for many years." This is a fact which some may find difficult to believe in such dark times, but that it is a fact is beginning to be demonstrated by those who are not afraid of experiment and innovation, and its truth will become more and more apparent during the months to come.

Passenger Traffic Picture Not All Dark

Low rate excursions in Pullman cars have brought attention to the fact, according to officers of several railroads which have operated them, that many people have never yet ridden in a sleeping car. It would be equally interesting to know, even approximately, just what is the growing number of our citizens who have never ridden on a train or who have not patronized the railways' passenger service for, say, ten years or more.

Facing such facts, where they can be ascertained or estimated, may be painful, but it is nevertheless necessary if any solution to this complex problem is to be found. Not only must the railways draw back to themselves patrons they have lost; they must also make their service known and appreciated by persons who are all but totally ignorant of what the railways have to offer. On another page of this issue is published an article which tells of some of the recent experiences of the railways with specially reduced rates. Some such experiments have succeeded. Others have failed. Of those which have succeeded, the Pullman excursions and the efforts of the roads serving the New Jersey seashore and the Pacific coast appear to be outstanding. These should be analyzed to determine the causes for their success and whether or not they suggest principles which might be applied with similar success elsewhere.

A recent innovation which has attracted wide comment has been the co-operation of the railways in advertising jointly the one-third reduction in holiday fares throughout the East. This advertising has undoubtedly exploited this service far more effectively than the railroads involved could have expected to do singly for an equal expenditure of money. If any criticism of such a laudable innovation could be suggested, it could be no more severe than a regret that such a praiseworthy effort should be restricted to such modest proportions. One tourist agency alone, for example, used full-page advertisements in New York Sunday papers to exploit a single holiday steamship tour—which shows the merchandising zeal with which the railways have to compete. Bus line advertising in some daily newspapers often exceeds that of the railways.

The railroads can haul people at one cent a mile or less and make money—provided that they can haul the people in sufficiently large aggregations. That is an element of fundamental economic strength of which no other form of transport can boast. If that fact be kept in mind, the present passenger traffic situation appears much less hopeless. Continued curtailment of unremunerative services and persistent concentration of sales effort and low rates on the services which promise proportionate rewards ought one day to make the prospects far brighter than they seem to many of us now. All honor, then, to the experimenters, and to those who are fostering co-operative action to make the railroads' efforts more effective!

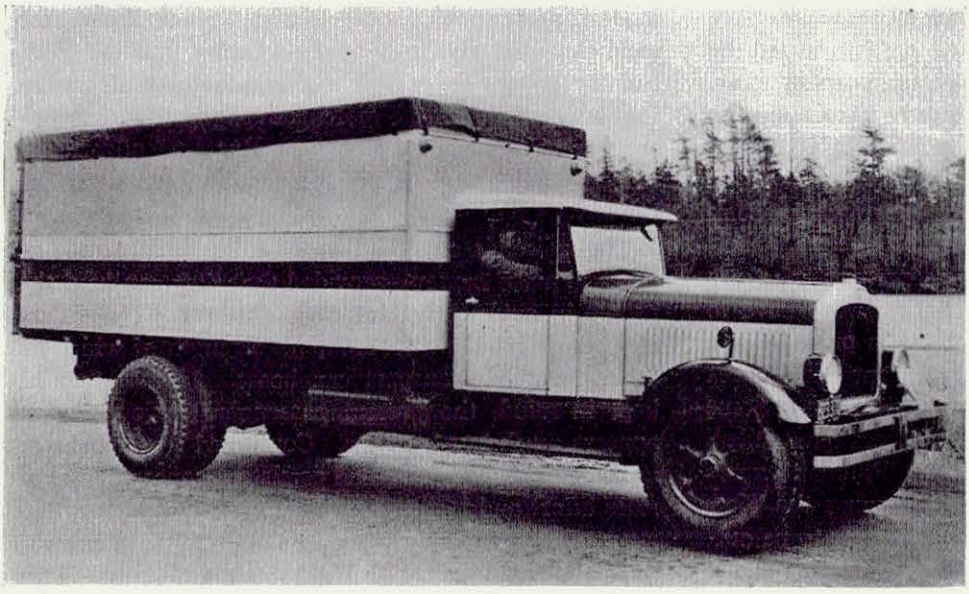
* * * *

Photo by Ohio Brass Company

The Cleveland Terminal Tower Seen Through the Catenary Structure

Operating Economy Series — Article No. 24

Containers Save Money for Shippers and the Railroads



The Truck Performs an Essential Part of the Transportation of Every Less-Carload and of Many Carload Railway Shipments. Its Ability to Perform More Than Its Share of the Movement Is Partly Due to the Inflexibility of Railway Rolling Stock

THE economies produced by investments in most classes of railway facilities result almost exclusively from their effect on operation. The tangible justification for investment in modern freight locomotives is the reduction in the unit cost of freight-train operation. Improvements in engine-terminal facilities are justified by the improvements in operating conditions or the reductions in locomotive maintenance and enginehouse expense which they effect. This is also true with respect to signals, yard facilities, facilities utilized in maintenance of way, coaling stations, etc.

In the discussion of improvements in freight cars, however, operating economies and operating practices are merely aspects of a problem involving practices in almost every feature of the railroad business, including the tariff structure, transportation service, and extra-railroad phases of transportation with which operating- and technical-department officers are not accustomed to concern themselves. The discussion must be broadened to include the economic results to the purchasers as well as to the sellers of transportation service.

In the case of locomotives and many of the other types of facilities above suggested, the improvement and refinements in the character of the facilities available to the railroads have made facilities obsolete which a few years ago represented the approved status of the art. In the case of the cars in which the great bulk of the goods of a continent are now distributed, no such situation exists at the present time. The commercial development of the steel freight car a third of a century ago was the last comprehensive advance in the development of conventional freight equipment and, while this has been followed by a progressive increase in the average capacity and weight of freight cars, improvements in design and construction of steel equipment have not been of a character to make completely obsolete, beyond the possibility of rehabilitation by piecemeal betterments, the designs of twenty-five to thirty years ago. This stability in the status of freight-car design is indicated by the extent of the program of standardization which the Mechanical Division of the American Railway Association has been able to carry out.

Limitations of Mass Transportation

Certain phases of the development of mass transportation reached their peak during the World War when the entire industrial machine of the nation was operating under a peak load. During this same period, incidentally, the inflexibility of the mass transportation machine also became for the first time strikingly evident when the attempt to carry out the system of priorities of the War Industries Board came precariously near to causing a complete breakdown of transportation service.

Since the war, significant changes have been taking place in the kind of service required by large groups of transportation buyers. Immediately following the return of the railroads to owner operation in 1920 a concerted effort was made by the American Railway Association to win the good opinion of the shippers and the public in general, and a vast improvement was made in the quality of the service. President Hoover, then Secretary of Commerce, in his annual report for 1926, commenting on the accomplishments of the railroads during the five years preceding, said: "The result of this great reorganization upon the whole economic structure of the country has been far-reaching. Rapid dispatch has greatly reduced the inventories of the

country, has contributed to stabilization of production and employment, and has increased the efficiency of all production and distribution."

These improvements in service, however, were not changes in the fundamental character of the service, but were almost entirely improvements in the details of operating practices. Although vastly improved in its functions, the emphasis was still on mass transportation service.

Expedited deliveries, dependably maintained, have played a big part in effecting marked changes in commercial practice in the United States. Seasonal buying has been replaced by hand-to-mouth buying. Goods are ordered in small quantities at frequent intervals, thereby not only conserving working capital, but also reducing the risks and losses resulting from overstocking which have to be guarded against particularly in the case of goods involving style factors and are strongly emphasized in a period when the general price level is tending downward.

The railroads have thus contributed largely to the creation of a situation which they, organized primarily for mass service, have not yet been well adapted to meet. They are, therefore, particularly vulnerable to the competition of the motor truck which provides prompt service in small units and for distances the economic length of which have been greatly exceeded commercially because of subsidies in the form of inadequate taxation for the use of the public highways and inadequate regulation of rates and operating practices.

Where Retail Service Is Needed

A study of the classification of commodities moved by the railroads gives some index to the extent to which the freight service in the United States may be classed as mass transportation and also indicates the field within which the rolling stock provided primarily to meet the conditions of mass service is not well suited to meet the new commercial requirements of the country. For this purpose the commodity statistics for the year 1929 have been selected, this being the last year for which full business activities were maintained.

During 1929 1.3 billion tons of carload freight were originated and loaded in 36.8 million cars. Of these carloads about 15 million were in open-top cars; something over one million were in flat cars; over five million were in tank, refrigerator and stock cars; about 12 million were in box cars. Approximately three million carloads are not readily classifiable as to the kind of cars utilized. For the same year the Car Service Division of the American Railway Association reported total car loadings of 52.8 million, of which probably 16 million represent the l.c.l. loadings, most, if not all of which, require box cars.

The open-top carloads were largely the products of mines and some heavy manufactured commodities. These cars were practically all loaded to full tonnage capacity.

The tank, stock, refrigerator and flat cars are all designed to meet the requirements of special types of lading and are either utilized to full tonnage capacity, or to as nearly full cubical capacity as the character of the lading will permit.

The box-car loading may be divided into three classes: (1) Tonnage commodities, such as grain, certain iron and steel products, metal ingots, cement, face brick, fertilizers, etc.; (2) relatively light-weight lading, including light, bulky products of agriculture, animals and forests, and products of manufacture which move in relatively light loads, either because of the bulk of the commodity, or because its structure does not permit the full utilization of the car capacity, either tonnage or space; (3) l.c.l. shipments. The average weight per carload of the tonnage commodities shipped in box cars is slightly less than 40 tons; that of the light lading moving in carload lots is slightly above 20 tons. On the basis of 16 million cars loaded, the average carload of l.c.l. freight was between two and three tons in 1929. The heavy inroads which motor trucks have made into the volume of l.c.l. rail traffic are responsible for a marked decline in the average l.c.l. carload.

It will be seen that, in round numbers, 28 million of the 52.8 million cars loaded, including the l.c.l. loadings, are box cars. Sixteen million, or about 57 per cent, were required for l.c.l. shipments, and 8 million, or about 29 per cent, are required for the loading of light-weight carload shipments. Within these two groups, representing about 86 per cent of the box-car demand, lie the most clearly defined disabilities of the railroads to meet efficiently the newly developed requirements of the country for frequent shipments in small lots in the distribution of its finished products to the consumer.

The disabilities under which the railroads now suffer

The Problem with Which the Railroads Are Faced Is How To Effect the Transfer Between Road and Rail with a Minimum of Expense and Without a Rehandling of the Goods

within this field are largely the result of the competition of motor trucks on improved highways. Important among them are: (1) The cost of additional collection and delivery service; (2) the cost of packing for rail shipment; (3) expensive freight-house handling; (4) high carload minimums; (5) slow deliveries of l.c.l. shipments, and (6) fixed charges on and expense of maintaining large numbers of l.c.l. freight houses, many on high-priced city land.

The motor truck has the advantage of performing in one transaction, without intermediate handling, the entire transportation service from shipping platform to store door. This has its greatest effect on l.c.l. and merchandise carload shipments. So far as the shipper is concerned, the cost of the extra-railroad transportation involved in the collection and delivery services must be added to the railroad freight charges before a comparison of the cost of movement by railroad and by truck can be made. The elimination of rehandling at loading and unloading points also reduces the loss and damage hazard.

The packing which is required for merchandise shipments, whether carload or l.c.l., is another extra-railroad cost which is largely eliminated when shipping by truck. In some cases this becomes a major part of the total cost of the transportation service to the shipper. In the case of a furniture shipment, for instance, in which the carload rate amounted to $78 for the movement, the cost of packing and unpacking amounted to $80 for the carload. The truck rate for the carload amounted to $75 and no crating was required. It is evident that in this case the rate for the transportation service had less to do with the decision of the shipper than the extra-railroad costs which he was able to save by employing the truck.

It is a well established principle of conventional railroad transportation that the terminal costs constitute a large part of the total cost of l.c.l. shipments where the road movement is short. This is partially reflected in the rate structure, but not sufficiently to make short movements of this character profitable to the railroads. Testimony before the Interstate Commerce Commission in the container service hearings in 1930 developed the fact that platform costs were 11.55 cents per hundred pounds of l.c.l. freight on both the New York Central and the Pennsylvania, and 7.8 cents per hundred on the Lehigh Valley. Clerical costs on these roads were, respectively, 12.6, 9.7 and 7.8 cents per hundred.

The amount of station employees' wages which can be allocated solely to freight service will be found to be almost half as much as the amount paid for crew wages in train service which can be directly allocated to freight-train movement. The platform costs alone—the labor and supervision directly employed in handling l.c.l. freight—are about one-fifth as much as the entire freight-train crew wage bill, which includes the movement of all freight, both carload and l.c.l. This expense is incurred in connection with about three per cent of the total tonnage originated by the railroads.

The carload minimums set forth in the railroad freight tariffs at one time largely established the size of the commercial units in which the merchandise was purchased by jobbers from manufacturers. With the generally slow movement of all freight prior to 1920, stocks required in order to insure deliveries were so large that the purchase of goods in carload lots produced no added inconvenience. With the improvement in the time and regularity of deliveries for which the railroads themselves have been responsible since 1920, the reduced stocks with which prompt service of customers may be effected has encouraged more frequent purchases in smaller lots. This has tended to reduce the size of commercial units considerably below carload minimums. With the growth of motor-truck transporation the cost competition is to a large extent between the l.c.l. rate and the truck rate. With the added advantage of prompt overnight deliveries which the trucks are able to offer over considerable distances, this is placing the railroads at an increasing disadvantage in the movement of many classes of merchandise.

In a survey of the shipping situation between New York City and Philadelphia, made by Russell W. Talbot a study of the conditions affecting the practices of fifteen shippers of paper, paper products, textiles, chemicals, heavy hardware, floor covering, radio sets, confectionery, bakery products, paint and cigars, developed the fact that the essential factor which led thirteen of the fifteen concerns to ship by motor truck was the ability to secure overnight delivery between the two cities, store-door delivery being a contributing factor in the case of ten of the shippers. It was found that in the shipments by rail, with local truck delivery, as much as two to three days were required for delivery.

The cost of maintaining l.c.l. freight houses in congested city territory is an item of considerable economic importance to the railroads, particularly in view of the fact that these investments are related to the production of about three per cent of the total freight tonnage originated. In one case, for instance, the taxes on the property occupied by a city l.c.l. freight house exceed the total revenue from the freight loaded at this point.

Equipment the Basis of Present Practices

While these disabilities arise not alone from the character of the conventional type of rolling stock which the railroads provide for the movement of merchandise carload and l.c.l. shipments, it is nevertheless true that the character of the rolling stock forms the basis on which traditional methods of collection and delivery, intra-railroad practice of classifying and consolidating l.c.l. shipments and the tariff structure have been built up. The problem with which the railroads are faced and which some of them have already vigorously attacked is how to effect the transfer between road and rail with a minimum of expense and without a rehandling of the goods. The solution of this problem will simplify the problem of store-door collection and delivery and should effect a material reduction in the cost of packing. This problem basically involves the devolpment of new types of equipment which may ultimately largely replace the conventional box car within that field which involves over 80 per cent of the present total box-car demand.

Opposition to New Methods Rapidly Disappearing

In the public mind the railroads stand charged with undue conservatism in adopting new methods and adapting their service to the changing requirements and desires of their patrons. In answer, the narrow field for the exercise of initiative which has been left to the railroad managements by public regulatory authorities is commonly cited. Whatever validity this accusation and its conventional answer may have had in the past, neither applies in the situation under discussion at the present time. In its decision in the container case the Interstate Commerce Commission clearly evidenced its sympathy with the railroads in their efforts to meet the competition of motor trucks by the use of the new types of equipment which call for changes in tariffs and operating practices. This is further indicated by the commission's permission, granted to certain railroads, for the establishment of truck-body rates on a flat mileage basis for an experimental period. There is no rea-

son to doubt that encouragement from the Commission will continue in so far as the efforts of the railroads are directed along lines which will provide improved and cheaper transportation service to the public, if the revenues accruing from such services are collected in such a way as to be conserved to the railroads themselves in proportion to the actual transportation service rendered.

The extent to which the railroads are experimentally developing new forms of service, utilizing the various types of containers now available, trying various methods of store-door collection and delivery, and changing operating methods to expedite merchandise deliveries

In Next Week's Issue

Wood preservation saved the railways of the United States at least $33,000,000 in the renewal of crossties in 1929, but this can be increased to over $55,000,000 annually by greater refinement in practice. The treatment of timbers and piles used in a trestle bridge is justified if the structure develops a life of 16 years, but the average life actually realized is at least 30 years. Experience in the treatment of poles, fence posts, wood-block floors, wooden-box and stave-pipe culverts, and timbers used for a variety of other purposes demonstrates economies that warrant the more general application of wood that has been subjected to preservative processes.

are all indications of an active and rapidly spreading interest on the part of the railroads themselves in adapting the railway machine to meet the demands for the new retail service along with their already effective and cheap mass transportation service.

A large number of containers are already in use. The New York Central has years of experience behind its utilization of the L.C.L. container within a relatively limited field of service. Within the past year the Pennsylvania has rapidly extended the use of the Keystone container and over 3,000 are now in a regular service which will ultimately be available between all of the important shipping points on that system. The Church container designed for box-car loading has passed the experimental stage. The principle of the Bonner Rail Wagon has been utilized successfully on the Lake Shore Electric Line between Cleveland, Ohio, and Toledo for some time. The Meyercord container has recently been successfully demonstrated and the Fitch truck body style is being increasingly used. Other types of containers are in the process of development.

What the New Methods Offer

These new types of equipment have demonstrated possibilities for economy in transportation costs which mean much both to the shipper and to the railroad. The L.C.L. containers on the New York Central, handling brick and road-building materials, have successfully met river competition by the saving in handling which direct road side delivery has effected for its patrons. Container services operating on the third-class-minimum rate basis suggested by the Interstate Commerce Commission in its container case decision are effecting reductions in transportation costs to l.c.l. shippers varying from 35 to 50 per cent, part of which is in the rate and a substantial additional portion in packing and trucking costs. Deliveries are also being expedited.

Such equipment and methods have no less economic value to the railroads than to the shippers. The elimination of from two to four rehandlings of l.c.l. shipments at originating and delivery freight houses and transfers offers opportunties for reductions in operating expenses of an order comparable with those which have been effected in locomotive fuel consumption during the past decade. The possibilities for a decrease in car mileage by the increasing car loading of l.c.l. shipments which containers are making possible will have appreciable effects on several transportation accounts. Using present container practice as a criterion, an ultimate full utilization of the container principle may be expected to reduce the 16 million l.c.l. car loadings of 1929 to six or seven million. In his address before the Associated Traffic Clubs of America at Tulsa on October 28, J. R. Turney, vice-president of the St. Louis-Southwestern, suggested the possibility of the ultimate abandonment of expensive urban freight houses, replacing them with outlying transfer platforms, as the result of the revisions of the tariffs and methods which will be necessary to effect complete utilization of the new forms of equipment.

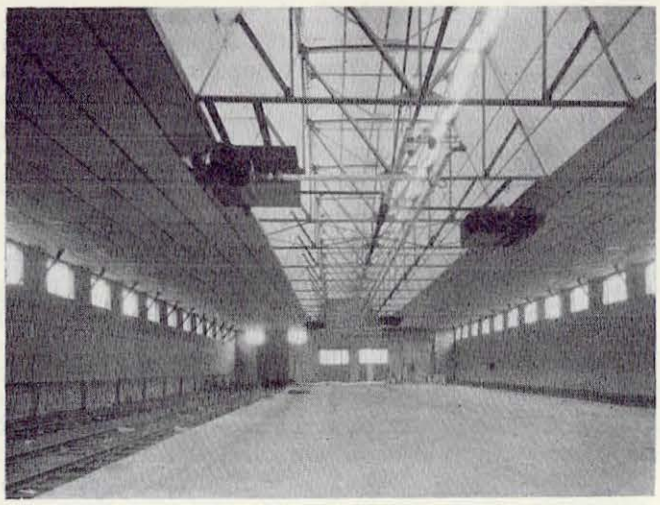
While great progress has already been made in the development of forms of equipment to facilitate the transfer from road to rail, the field is by no means closed to the inventor. The greatest value can only be obtained when this transfer can be made so simply and cheaply that it becomes available not alone to the larger shipping points, but to all stations of sufficient importance to justify a continuance of direct rail delivery, when rail and highway transportation are co-ordinated on a soundly economic basis. The field is still essentially one for the inventor, and in its development the knowledge of the engineer must be supplemented by the knowledge of forward-looking operating and traffic officers.

The continuance of the railways in the position of preeminence in the transportation field which they have long held depends upon the extent to which they avail themselves of the opportunities which the changing transportation needs of the country place before them.

All-Steel Warehouse Protects Banana Shipments

THE Chicago, Burlington & Quincy recently completed a banana warehouse at Minneapolis, Minn., which is distinctly out of the ordinary in that it embodies the adoption of an all-steel design for the exacting temperature requirements of a structure used for that purpose. The warehouse can be used for handling other fruits but was built primarily to facilitate the unloading and handling in transit of bananas, of which about 350 carloads a month are moved by the Burlington into and through Minneapolis. It was, therefore, designed and constructed so that temperatures ranging between 45 deg. and 70 deg. could be assured at all times.

The building has a clear span of 90 ft. and an overall length of 200 ft. The roof trusses, which are of the bowstring type with all members electrically welded, provide a clear height of 22 ft. and reach a total height to the top of the monitor of 42 ft. above the rail. For purposes of lighting and ventilation, this monitor, the sides of which are of glass, extends practically the full length of the building. The corrugated steel sheets



The Headroom in the House is Appreciably Greater Than That Usually Provided for Such Use

which form the roofing and siding are applied directly to the structural frame, to which they are attached by means of bolts.

Tracks and Driveway

Three interior tracks run the entire length of the building, two on one side and the third adjacent to the opposite wall, the centers being 13 ft. and 60 ft. The wider space is occupied by a concrete driveway of ample width to accommodate all trucking operations. The foundation consists of a continuous footing wall, also of concrete, which has been raised about three feet above the rail over part of its length on one side to provide a retaining wall to hold back an embankment.

Double swinging doors in one end of the warehouse, having a clear height of 21 ft. and a width of 16 ft. for the single track and of 29 ft. for the double track, provide the necessary protection for the track entrances. Four similar doors, two at each end, 12 ft. wide and 14 ft. high, give trucks access to the driveway and permit them to enter or leave at either end.

Since obstructions in the driveway were not desirable, the structure was designed to provide a clear space over the entire area enclosed. The roof trusses are spaced on 12-ft. centers and, to provide longitudinal stability, diagonal bracing was placed between columns in the end panels and in two intermediate panels, while heavy knee braces were used to insure transverse stiffness. Windows were introduced to occupy most of the space directly under the eaves in order to provide as much light as practicable above the tops of the cars.

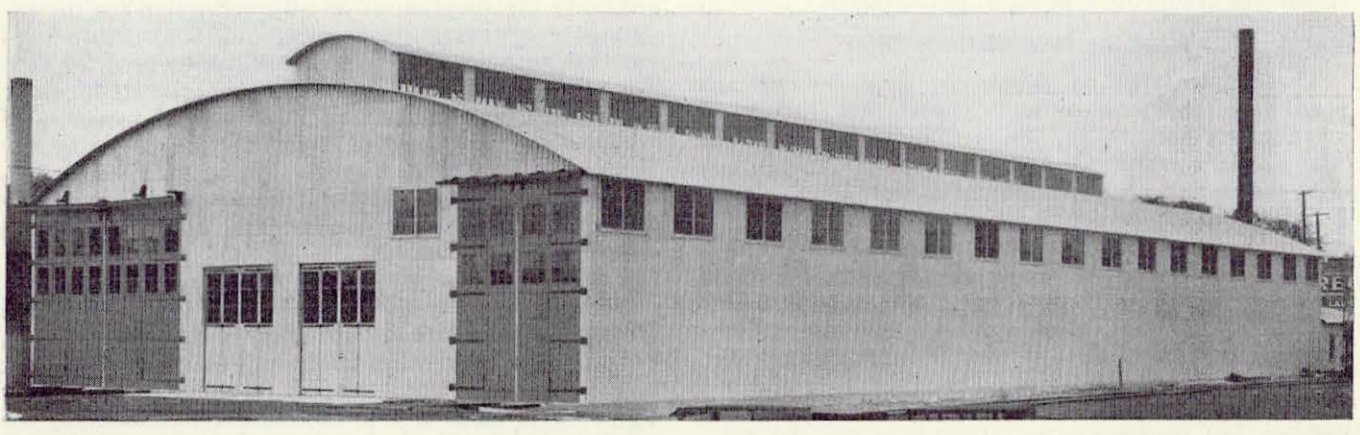
Since winter temperatures in this area are often very low, ample provision was made for insulating and heating the building. Insulation is provided by a ½-in. lining of Nuwood, placed along the inner face of the columns on both sides and ends, under the roof trusses and around the inner surface of the monitor. To supply the necessary heat, a boiler house, 24 ft. by 24 ft., of similar construction, was built and equipped with two vertical low-pressure cast-iron steam boilers, each of which has a capacity for 6,000 sq. ft. of radiation. The boilers are designed to burn fuel oil and are equipped with Rayoil burners. An 11,000-gal. fuel-oil storage tank, designed for outside delivery and automatic control of the feed to the burners, was installed underground outside of the boiler house. The steel stack is 33 in. in diameter and 65 ft. high.

Four high-velocity unit heaters, operated by two-horsepower motors were installed at proper intervals immediately below the ceiling line, where they are suspended from the lower chords of the roof trusses. The steam pressure is 5 lb. and the heater fans operate at a speed of 900 r. p. m. Each unit has a capacity of 536,000 B.t.u. per hr. and is capable of heating and discharging 8,000 cu. ft. of air a minute from 60 deg. F. to 128½ deg. When in full operation, these heaters will maintain a temperature of 55 deg. inside of the building when the outside temperature is 20 deg. below zero. The heating plant was made as nearly automatic in operation as practicable. The unit heaters are under thermostatic control; the delivery of water to the boiler and of the oil to the burners is automatic, and automatic damper control was also installed.

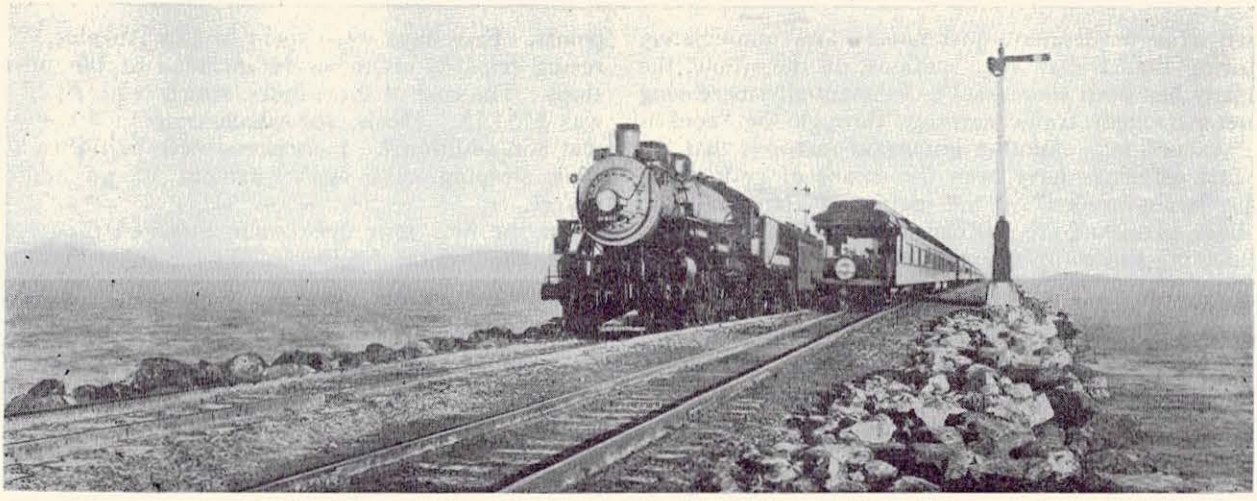
Used Ready-Mixed Concrete

An interesting feature of the construction was the use of ready-mixed concrete in the foundations and driveway. Since the requirements were relatively small, only 300 cu. yd., and the concrete had to be placed in several lots at different times, it was found that, by the use of ready-mixed concrete, a saving of $4 a cu. yd. could be effected over the method of mixing on the job. The mixed concrete was hauled about three miles in 2-cu. yd. tank trucks, which were equipped with mechanical agitators to prevent segregation enroute. The mixing and proportioning were done in accordance with the railway's specifications, under the supervision of an inspector. Test cylinders which were made at intervals gave very satisfactory results.

The building was erected by the Butler Manufacturing Company, Kansas City, Mo., under the supervision of H. G. Dalton, engineer of buildings, Chicago, Burlington & Quincy, to whom we are indebted for the information upon which this article is based.



The New Banana House at Minneapolis



The Overland Limited Passing over the Southern Pacific's Lucin Cut-Off Across Great Salt Lake

Some Sections Succeed in Stimulating Passenger Travel

S. P.'s modern merchandising plans draw record breaking business—Vast rise in journeys to Jersey shore

RECENT experiments with reduced passenger fares have demonstrated that the desires of the public vary in different localities and that while a certain form of reduced rates will stimulate travel in one section of the country, similar rates fail to produce business in other sections. The "Dollar Days" established by the railroads on the Pacific coast, wherein the rate approximated one cent a mile, were successful in creating new business but when the carriers operating out of Chicago, placed a one cent rate in effect on April 24 and 25, little travel was stimulated. The Labor Day excursions offered by western railroads produced fair results, although the movement this year was less than last year. Probably the most favorable results have been secured by the Southern Pacific and other lines on the Pacific coast.

Bargain sales of rail transportation, offering 100 miles of train rides for $1 and introducing sales promotion plans never before attempted by any railroad in the country, have been effective in attracting new and increased passenger traffic to the Southern Pacific's Pacific Lines. Widely advertised as "Dollar Days" in much the same manner as merchandise bargains are broadcast by the large department stores, the Southern Pacific's initial experiment last February in this novel method of stimulating public interest in train travel was so successful that five additional "Dollar Day" periods were staged in succeeding months, the last one being October 9, 10, and 11. Timed so they would occur simultaneously with holidays, or state and local events of general interest, the "penny-a-mile" excursions met with widespread popular favor and have been productive of the heaviest passenger traffic movements ever known in the West.

More than 50,000 round-trip tickets were sold when the excursions were placed in effect over the Washington's birthday week-end in February. The ticket sale average was close to that figure for the two-day Easter event in April and for both the Mother's Day "home coming" and Memorial Day bargain sales in May. The Labor Day excursion at the beginning of the late vacation season resulted in a sale of 58,600 round-trip tickets during the three-day sales period. It was necessary to operate 111 extra trains to handle the traffic for this September movement, all available equipment of the company's own or its allied lines being assembled at strategic terminals ready for use.

Increased Net from Passenger Revenues

Tickets for the Southern Pacific's first "cent-a-mile" excursion held last winter were offered for sale on Friday only for trips to be started the same day. Round-trip tickets for this initial sale, based on three-fifths of the regular one-way fare, had a return limit of five days. These restrictions as to day of sale and return limit were gradually extended for subsequent "Dollar Days," making the events more attractive to the public in general. Tickets for the most recent excursions were sold on Friday, Saturday or Sunday, offering travelers greater opportunity to take advantage of the unusually low fares. The return limit for one of the sales reached a maximum of 12 days from the first date of sale. The bargain tickets are accepted on all trains, both coach and Pullman, for travel anywhere on the 9,000 miles of the company's lines extending from San Francisco to Ogden, including Salt Lake City, and from Portland to El Paso.

While the volume of tickets sold at regular rates has

shown a slight decrease just before and immediately following the "Dollar Day" periods, on the whole, the company has been successful in substantially increasing its net passenger traffic earnings through the "cent-a-mile" excursions. Another important factor is that the low-fare offerings have been the means of getting the public "train-minded" in the matter of transportation and have furnished the railroad with an effective agency for meeting the competition of the private automobile.

Pullman Finds Excursions Popular

Another form of excursion which was introduced during the summer months involved the use of Pullman sleeping cars on several railroads and attracted many patrons who used that class of service for the first time. During this period a total of 86 Pullman car excursions were operated and the patronage aggregated 13,662 passengers who were carried in 464 Pullman cars, an average loading of 29.4 passengers per car. Excursions on June 28 involved the handling of 595 passengers in 22 cars, over routes as follows: From Elmira and Binghamton to New York; from Cleveland and Buffalo to Auriesville; from Chicago to Niagara Falls; from Chicago to Pittsburgh and New Castle; from Chicago to Cleveland; from Chicago to Toledo and Detroit; and from Detroit to Pittsburgh. On July 12, 23 cars carried 688 travelers from Chicago and Detroit to Pittsburgh; from Buffalo to New York; from New York to Niagara Falls; from Chicago to Cleveland; and from Pittsburgh to Detroit.

There were four excursions on August 29, one of four cars from Chicago to Niagara Falls, with 136 passengers or an average of 34 passengers per car; another of two cars from Elmira and Binghamton to Hoboken, with 41 passengers or an average of 20½ passengers; a two-car movement from Cleveland to Chicago, with 69 passengers or an average of 34½ passengers; and a seven-car movement from Boston to Auriesville, with 247 passengers or an average of 35.3 passengers per car. This last movement was in substance a religious pilgrimage.

Pullman cars were especially well patronized during Labor Day week-end excursions. There were 13 special sleeping cars from Boston to Niagara Falls with 408 passengers, or an average of 31.4 passengers per car and 17 cars from Philadelphia to Niagara Falls, Buffalo, Toronto and Rochester, with 579 passengers, an average of 34 passengers per car.

Rock Island All-Expense Coach Tours Stimulate Business

The Chicago, Rock Island & Pacific introduced an innovation in the form of four all-expense coach tours in conjunction with the Southern Pacific, which operated from Chicago to the Pacific coast in July and August. The tours left Chicago on July 1 and 15 and August 16 and 23, an effort being made to make the trip as comfortable as possible by placing only 40 passengers in a coach which was accompanied by a porter, who was responsible for the comfort of the passengers and who provided pillows for a nominal rental. Patrons traveled during the day and each night were assigned to rooms in high class hotels at some interesting city or mountain resort, so that the entire trip to California and return was made by daylight, permitting the passengers to view points not seen during an ordinary trip across the continent. Stops were made at Omaha, Neb.; Colorado Springs, Colo.; Glenwood Springs; Salt Lake City, Utah; Lake Tahoe, Cal.; Reno, Nev.; San Francisco; Santa Barbara; Los Angeles; San Diego; Feather River Canyon and other points. Five days were spent in Los Angeles. Sightseeing trips by motor were included at the principal stops. The cost of these tours, which required 17 days, was $154.15. Meals, for which coupons were issued, cost $38 additional. Passengers were permitted to occupy sleeping cars upon payment of an additional charge.

On the first tour one coach, attached to a regular train, handled the business. On the other three days, the coaches were handled in coach trains operated as sections of regular trains. Approximately 400 passengers were handled on the four days. The average per coach train was only 120 persons and since one-way dining car service and other necessary equipment were provided by each railroad, the cost of operating the special trains exceeded the revenue. However, the excursions were operated during the vacation months and it is felt that the low rates appealed to persons who could not otherwise have taken such an extended trip.

Family Bargain Rates

Still another departure was made by the railroads in the Southwestern Passenger Association Territory which offered family bargain fares from points on their lines to points in Texas on September 25 and 26, good returning until October 6. The rates were designed to induce the "taking of the family along at little additional cost" and were fixed on a sliding scale, so that the round-trip rate per person varied with the number of persons transported. For example, the regular round-trip adult fare from St. Louis to Dallas was $48.06, while under the new rate, one adult ticket cost $26, two adults on one ticket, $41.60 and five adults on one ticket $55. Using the round-trip rate of $55 for five adults, the rate per person between St. Louis and Dallas, 767 miles each way, amounted to 7.8 mills per mile. At the same time, carriers operating from Chicago to the southwest published joint rates which made the rate from Chicago to points in Texas via St. Louis, Kansas City or New Orleans, equal to the rate from St. Louis to points in Texas, plus $12.

The rates were widely advertised by the participating southwestern carriers, particularly in St. Louis. However, only a small amount of business was secured by the southwestern lines from that territory and only a few tickets were sold by the Chicago carriers for points in Texas. Although the small number of tickets sold indicates that little, if any, new business was created, the southwestern carriers feel that better results would have been experienced if the plan had been placed in effect during the tourist season.

Post Card Announcements Build Up Fruitful Prospect List

As a means of stimulating this special business, several railroads in Chicago and St. Louis are employing post cards which are sent to a chosen list to acquaint them with the reduced rates. The plan was started by one road three years ago and has since been adopted by several others. The Chicago line which instituted the post card system, placed reduced rates in effect between Chicago and certain points on its lines and advertised the rates extensively. Each patron was given a card on which he was asked to write his name and address and designate whether he wished to receive notification of excursions that would be run in the future. Conductors were instructed to procure replies from each patron. This suggestion was received favorably by the patrons and as a result, 120 persons who had attended the first excursion, were placed on a mailing list which

was immediately increased by persons who learned of the plan and requested the railroad to place their names on the list and by additional names submitted by persons who had taken advantage of the excursion.

The same procedure has been continued at subsequent excursions and as a result, the mailing list now totals over 5,000 and the patronage of excursions has increased continuously. That the mail announcement has also created a favorable reaction is evidenced by the fact that when many prospects fail to receive their cards, they call the railroad to task for the omission, which is usually due to a change in address, and demand that their names be continued on the mailing list.

South Jersey Rates Bring Enormous Increase in Traffic

The railroads serving coast resorts in Southern New Jersey have had an interesting experience with a very low one-day Saturday, Sunday and holiday excursion rate from Philadelphia to these resorts. They reduced the round-trip fare for such excursions from $1.50 to $1 and made the tickets available on all trains. The result was a tremendous increase in business, one road handling 155 per cent additional passengers and the other 130 per cent additional passengers, the latter with an increase of 62 per cent in revenue. There was, of course, somewhat of a decline in sales of other tickets, but, taking all forms of tickets together, the second road had an increase of 52 per cent in total passengers and a decline of only about 8 per cent in revenue. It is believed, however, that this instance may be exceptional because of the wide prevalence of pleasure travel and the great volume of highway traffic.

The railroads in the Eastern territory, possibly with this example in view, are making drastic reductions in round-trip Sunday excursions fares, some as high as 66 per cent, to Philadelphia, New York, Atlantic City, Washington and many other points, all with the hope of building up a large volume of pleasure travel on Sundays and holidays, without affecting the rate structure for week-day services.

A number of railroads are offering reduced round-trip rates in suburban areas. The Reading, for example, has for some time offered a round-trip one-day shopper's ticket based on one fare and a tenth within a 25-mile zone from Philadelphia. It is now extending the one-day limit on this ticket, which has been quite successful, to three days in order to meet a demand for a low week-end fare. When this ticket is purchased on Friday it will be honored through Monday. This company, also, is offering a ten-day round-trip ticket throughout its system within the state of Pennsylvania on a basis of 80 per cent of double the one-way rate, making a rate per mile of 2.88 cents.

In Connection With the Third Olympic Winter Games, to be held at Lake Placid, N. Y., from February 4 to 13, 1932, the New York Central and the Delaware & Hudson are planning to house some 500 visitors in Pullman cars and to maintain an international "commuting service" to and from Montreal, Que. The Pullmans which will be used as temporary homes by many of the guests will be parked on sidings built for the purpose near the Lake Placid station, and supplied with water and light by the town; while the commuting service, which will permit approximately 1,000 visitors to live in Montreal during the same period, will require special trains leaving Montreal each morning, reaching Lake Placid in time for the opening events, and returning to Montreal at the close of the day's sport program.

Executives Vote For Loan Pool Plan

Washington, D. C.

ANOTHER of the many procedural steps on the path toward the temporary emergency freight rate increase allowed by the Interstate Commerce Commission was taken at a meeting of the Association of Railway Executives here on December 11 when it was unanimously agreed, with one vote withheld, to recommend to the several boards of directors the adoption of the association's plan for applying the funds derived from the increase in aid of financially weak railroads, based as far as possible on the principle of self-help, with the request that they take action prior to December 21. The meeting of member roads followed a meeting of the Advisory Committee in the morning at which the commission's supplemental report withdrawing any requirement that the rate funds be pooled was thoroughly discussed and plans for the organization of the Railroad Credit Corporation were formed.

Pending final action of the member roads it was agreed that, to expedite the matter, the Association of Railway Executives should go forward with the preparation of preliminary arrangements looking to the placing of the plan in effect, so that everything will be in readiness to have it become operative just as soon as possible. At the meeting the importance of obtaining unanimous consent of the carriers to the plan was urged by Alfred P. Thom, general counsel of the association.

Possibly by way of reply to some of the suspicious remarks made by Commissioner Eastman in his dissenting opinion on the loan plan, a resolution was adopted that "in a sincere spirit of mutual co-operation and solidarity, so essential at this time and in the future to the welfare of the industry, we, the carriers assenting thereto, agree among ourselves in good faith to collect and apply the funds to be derived from the authorized increase in rates in aid of financially weak railroads, in accordance with the spirit of the purposes expressed in the Interstate Commerce Commission report, as amended by it, and with the plan proposed and approved by the carriers."

It was also resolved that "the Association of Railway Executives, realizing the responsibility of the carriers in this matter, hereby urges all those entitled to participate in the plan to give formal assent to the same prior to Monday noon, December 21, 1931, and solemnly emphasizes the importance of unanimous consent by the carriers to the end that at this critical period the solidarity of the railway industry may be assured and that the plan may be put into effect with the complete and vigorous support of the industry as a whole."

A meeting of traffic officers also was held in connection with the preparation of the tariffs necessary to put the rate increase into effect and it was stated that every effort was being made but that it was not expected they could be made effective before January 1.

Articles of incorporation under the laws of Delaware were formally filed on December 14 at Wilmington for The Railroad Credit Corporation by E. G. Buckland, chairman of the board of the New York, New Haven & Hartford, who has been elected president. Temporary offices have been established by Mr. Buckland in the Transportation building in Washington, where preliminary arrangements are being made, pending final approval of the plan by the member roads for setting up an organization under the plan.

Arrangements were also made for a meeting this week of the board of directors of the corporation, at which time the plans of the Corporation were to be discussed. The members of the board of directors in addition to Mr. Buckland are: J. J. Bernet, president, Chesapeake & Ohio; E. N. Brown, chairman of the board, St. Louis-San Francisco; A. J. County, vice-president in charge of finance and corporate relations, Pennsylvania; P. E. Crowley, president, New York Central Lines; L. A. Downs, president, Illinois Central System; G. B. Elliott, president, Atlantic Coast Line; A. D. McDonald, vice-chairman of executive committee, Southern Pacific Company; J. J. Pelley, president, New York, New Haven & Hartford; Bird M. Robinson, president, American Short Line Railroad Association; H. A. Scandrett, president, Chicago, Milwaukee, St. Paul & Pacific; and G. M. Shriver, senior vice-president, Baltimore & Ohio.

Development Men Told Railroads' Future Is Sound

WITH some revival in business the railroads will again regain their position not only as important transportation systems, but also as a safe and sound medium for investment, according to R. V. Fletcher, vice-president and general counsel of the Illinois Central in an address before the semi-annual meeting of the American Railway Development Association at Chicago on December 3-4. He pleaded for equality before the law on behalf of the railroads, saying that ultimately the problem of transportation would have to be solved according to economic laws, and he advocated such a co-ordination of all lines of transportation as would give to the nation a most convenient and economical system, based on individual initiative without support from the government for any branch of transportation.

He blamed the plight of the railways on the current depression of business and alleged unfair competition by government-subsidized transportation agencies, pointing out that the carriers are bound down by rules and regulations which prohibit free competition, while at the same time other forms of transportation, such as the waterways, trucks, motor coaches and airplanes, are free from these restrictions. He asserted that the receivership of the Wabash may be directly attributed to government interference. He said such action could have been avoided if the Interstate Commerce Commission had permitted the absorption of the road by the Pennsylvania. He deplored the present tendency toward a centralized bureaucratic form of government, asserting that the United States could not hope to succeed as a nation if any substantial part of its business was turned over to the control of bureau chiefs and committees.

Present Taxing Will Result in Confiscation

A continuation of the present practice of exclusive dependence upon general property taxes, with increasing exemption, will result in confiscation of property, according to John W. Watson, director of the department of taxation of the Illinois Agricultural Association who also addressed the meeting. Mr. Watson pointed out the weaknesses of various forms of taxation, showing how personal property taxes, which were adequate many years ago, are now unjust and inadequate. The general property tax, he said, gives practical exemption from all direct taxes to all those who are not owners of real property and in many states the people thus given wholesale exemption outnumber tax payers. As remedies to cure state and local tax disorders, he cited the consolidation of governments, budget control, uniform accounting and better business methods in government. "We," he continued, "should reorganize and eliminate many of our counties and school districts. We should greatly reduce the number of petty offices. But so long as a large portion of our population makes little or no direct contribution to meet the cost of government, all efforts to cut down the number of taxing districts, to dispense with an army of petty officers and to introduce better business methods and control in the handling of expenditures will probably continue to encounter the inertia of non-taxpayers and the bitter opposition of petty officers.

"The only way of arousing the interest of our citizens is to make them taxpayers, conscious taxpayers, by methods of taxation which will reach them and will require payment of taxes according to their ability. Such methods, the income tax, the poll tax and perhaps some carefully selected forms of sales taxes, will not injure non-real estate owners, but will arouse in them a personal interest in government and make them better citizens.

"To continue the present almost exclusive dependence upon the general property tax means increasing exemption of most citizens from direct taxation, gradual confiscation of property values, increasingly inadequate revenues for essential public services and continued extravagance and waste. Confiscation is already at hand for impoverished farm lands, for much city or village real estate, either unimproved or having old or obsolescent improvements. Confiscation is already at hand for some railroads upon which the burden of taxation is the proverbial last straw."

Land Utilization for Unemployment Relief

Land utilization for unemployment relief, discussed by Ralph W. Reynolds, commissioner of agricultural development and colonization of the Chicago, Milwaukee, St. Paul & Pacific, was looked upon with favor by the association, but complete approval of the federal program for land utilization for industrial unemployed was opposed by the majority of members present. Following the presentation of this subject at an agricultural section meeting on the first day, the Colonization committee submitted a recommendation to the general assemblage involving four considerations of the subject, but these were rejected since the majority of those present felt that the approval of the recommendations would force the association into a unified action. However, the members present did vote to seek co-operation among farm loan agencies to keep distressed farmers on the lands and to make available funds for unemployed who wish to return to farms. In addition, Mr. Reynolds was appointed to represent the association to attend meetings of the federal committee on land utilization.

Following an address on agricultural processing and industrial exhibit plans of the 1933 Chicago World's Fair by Harvey J. Sconce, chief of the agricultural division of the "Century of Progress," the discussion favored holding the annual meeting of the association in 1933 in Chicago. A committee was appointed to investigate the desirability of holding both the annual and semi-annual meetings in Chicago during that year and to report at the annual meeting at Louisville in 1932, so that the membership can vote on the proposal.

Employees Propose Negotiations on Wages

Railroad labor organizations in Chicago meeting show willingness to consider voluntary pay reduction— Railroad presidents appoint committee

ORGANIZED railroad labor is willing to negotiate with the railroad managements on the suggestion that the employees accept a 10 per cent reduction in their wages for one year. This willingness was expressed in a resolution adopted at the close of the meeting in Chicago of the officers and general chairmen of the 21 railroad labor organizations. The resolution, which was approved on December 11 after five days of meetings in which 1,500 representatives of railroad labor participated, proposed that the railroad managements select a committee authorized to represent them and, subject to the approval of the members of the labor organizations, empowered a committee consisting of the officers of the labor organizations to negotiate the wage reduction question and other matters such as the stabilization of employment.

This resolution placed upon the railroad executives the responsibility for further action, and the further action required was promptly taken. Upon a call from Daniel Willard, president of the Baltimore & Ohio, who was chairman of the committee of railroad presidents which had represented the railways in earlier wage discussions, the presidents of the Eastern railroads met in New York on December 14 and selected a committee to represent them in the proposed negotiations.

This committee consists of Mr. Willard; J. J. Pelley, president of the New York, New Haven & Hartford; and C. E. Denney, president of the Erie, the same group which represented the eastern railroads in the original meetings with the labor representatives. The appointment of the committee, which is authorized to represent all eastern roads except the Bangor & Aroostook, the Western Maryland and the Delaware & Hudson, followed a six-hour meeting of the eastern executives. At the conclusion of the session, F. W. Leamy, vice-president of the Delaware & Hudson and secretary of the Eastern presidents' conference, issued the following statement.

Courtesy Chicago Tribune

Daniel Willard, President of the B. & O., Received the Resolution of the Labor Organizations Immediately After Its Adoption

(Left to right) D. B. Robertson, Mr. Willard and Alvanley Johnston.

Courtesy Chicago Tribune

The Heads of the Principal Railroad Labor Organizations at the Chicago Meeting

(Left to right) A. F. Whitney, President, Brotherhood of Railroad Trainmen, T. C. Cashen, President, Switchmen's Union of North America, A. Johnston, Grand Chief Engineer, Brotherhood of Locomotive Engineers, D. B. Robertson, President, Brotherhood of Locomotive Firemen and Enginemen, and S. N. Berry, President, Order of Railway Conductors.

"The Eastern Presidents' Conference today, after considering the invitation extended by the Railway Labor Executives' Association to negotiate the pending issues concerning unemployment and wages, re-appointed Messrs. Willard, Pelley and Denney to serve on a committee to negotiate to a conclusion with the labor representatives.

"It is understood that the Western and Southeastern railroads will meet this week to consider the request of the Railway Labor Executives' Association.

"It is hoped that this action will result in an early and amicable adjustment of the matters involved."

While as stated above, it was at first expected that executives of western and of southern roads would take similar action it later developed that a general meeting of presidents would be held at the Biltmore Hotel in New York on December 18. Accordingly the Association of Western Railways at a meeting in Chicago on December 15 took no action on the labor proposals pending the outcome of the general meeting. Should this latter, as is expected, result in the reappointment of the Willard committee with the increased power to "negotiate to a conclusion" that has already been given the eastern members, all that would remain to be done before this railroad committee and labor executives meet is the ratification by the employees themselves of the action taken by their officers at the Chicago meeting; this was expected to require approxi-

mately two weeks from the time when the Chicago meeting of the labor officers was adjourned. Such ratification is looked for, therefore, by the end of next week.

There is no question that the labor organizations will continue to propose some measure of stabilization of employment in return for their acceptance of a voluntary reduction in wages. At no time during the meeting in Chicago did the labor executives lose an opportunity to make it plain that, in their opinion, stabilization of employment on the railroads is fully as important as wage reductions. The labor organizations' employment program, which they insist they desire fully as much as the railroad managements desire wage reductions, was outlined by Donald R. Richberg, general counsel of the Association of Railway Labor Executives, and by D. B. Robertson, chairman of this association, and president of the Brotherhood of Locomotive Firemen and Enginemen. The program includes stabilization of employment, the application of the six-hour day to the railroads, the protection of railroad employment and of the interests of individual communities in connection with railroad consolidations, retirement insurance, the establishment of an emergency employment bureau, and the establishment of a billion dollar fund for the elimination of grade crossings, half to be contributed by local governments and half by the railroads.

It looked for a while, during the Chicago meeting, as if the labor organizations would be a long time in reaching an agreement on the questions before them. Individual and joint meetings of the organizations, at which reports on the wage reduction proposal of the railroad presidents and the stabilization of employment proposals of the labor executives were read and discussed, occupied the first four days of the week. Little progress toward a decision was made. On Thursday night, December 10, a committee of 84 representatives of the 21 labor organizations at the Chicago meeting, this committee consisting of the presidents of the 21 organizations and a delegation of 3 general chairmen from each of them, held a lengthy session to formulate final recommendations. This committee of 84 remained in session until midnight, Thursday night, and continued their deliberations on the following morning. Shortly before noon a subcommittee of four was appointed to draw up a final resolution. This resolution was referred back to the committee of 84 early in the afternoon and received its approval. At 4:30 p.m. on December 11, the 1,500 general chairmen were assembled in one room and the resolution was read to them. It was received with enthusiasm, after which the general chairmen divided into separate meetings of their 21 respective organizations to take individual action on the resolution. At 7:30 p.m. another joint meeting was held, and the roll of the unions was called to ascertain their action on the resolution. One by one the heads of the unions cast the unanimous vote of their general chairmen in favor of adoption of the resolution. Subject to a call from their executives, the meeting of the general chairmen then adjourned, and the latter returned to their homes to secure the ratification of their action by the members of their organizations.

The labor executives lost no time in making their resolution known to railroad executives. Immediately after the resolution was adopted, Mr. Robertson, chairman of the Association of Railway Labor Executives, and Alvanley Johnston, grand chief engineer of the Brotherhood of Locomotive Engineers, and secretary of the association, personally delivered a copy of the resolution to Mr. Willard, who had been in Chicago during the week. Following a conference with Mr. Robertson and Mr. Johnston, Mr. Willard issued a statement in which he said, "The terms of the resolution seem to promise that an amicable understanding may be arrived at. I have arranged to call a conference of all the railroad presidents early next week, at which time the matter will be laid before them for their consideration and action. I am hopeful that an early and satisfactory understanding may be arrived at."

Later, in a letter to Mr. Robertson, Mr. Willard expressed further approval of the proposal of the labor organizations. The letter read: "I quite agree with you that the railroads should now appoint a small committee with authority to enter into negotiations with yourself and your associates in an effort to reach a definite understanding and agreement concerning the matters discussed at our New York conference and referred to in the resolutions accompanying your letter, and I shall recommend to them that they do so. I am attempting to arrange for a conference of railroad executives next week, and I have no doubt that at that time a committee will be selected and fully authorized to negotiate to a conclusion the several matters referred to in your letter. While I am not authorized to speak for the railroads, I wish you to know that I personally think that the action which you and your associates have taken here in Chicago represents the very finest type of industrial statesmanship. I am confident my associates will view the matter in the same light. Please accept my hearty congratulations because of the constructive and broadminded manner in which you have dealt with this important problem."

The text of the resolution adopted by the labor organizations reads as follows:

We have received and considered at length the report of the Railway Labor Executives' Association concerning the program to relieve unemployment and to stabilize employment, which was presented to the committee of nine railroad presidents at the conference held in New York beginning November 19; and we have received the report of the Railway Labor Executives' Association to the effect that the railroad presidents are practically united in a program, as explained by the committee of nine railroad presidents, of serving notice in the near future of intended changes in existing contracts reducing the rates of pay, unless the railway employees propose in lieu thereof to accept a voluntary deduction from the payrolls, based on existing contracts, of 10 per cent for one year.

We find that the executives of the organizations here represented were duly authorized to propose measures for the relief of unemployment and stabilization of employment; and we approve of their actions. We find that the committee of nine railroad presidents expressly stated, in writing at the opening of the New York conference, that their committee was "not authorized to enter into any negotiations touching the matters discussed."

In order to negotiate any agreement providing for a prompt and adequate solution of the problems presented to railroad managements and their employees, involving measures to relieve unemployment and to stabilize employment, and in order to dispose of the proposals of railway managements concerning the matter of wage reductions, it will be necessary for both railway managements and employees to designate representatives duly authorized to act. We invite and urge the managements of the railroads to create a committee of representatives duly authorized to negotiate to a conclusion, and we hereby resolve that each organization here represented shall proceed immediately to obtain the authority from its members on the respective railroads for the chief executive of its organization to act with the other executives, members of the Railway Labor Executives' Association, as a committee duly authorized and empowered to negotiate to a conclusion the pending issues concerning unemployment and wages with a duly authorized committee of the railway managements.

Be it further resolved that, in the event the railroad managements fail to create a committee duly authorized to act, our executives, authorized as hereinbefore provided, shall be further authorized to take all steps necessary for concerted and cooperative action in conformity with the provisions and spirit of the railway labor act to protect the interests of our memberships in existing rates of pay and working conditions.

New Process Retards Rail Batter

Method of heat treating developed on Milwaukee is applied to more than 275,000 joints with surprising results

AN unusually interesting development in track maintenance, which possesses large economic possibilities, has been in progress on the Chicago, Milwaukee, St. Paul & Pacific since 1927. The purpose of the development, which has proved so satisfactory that it has been adopted as standard practice by this road, is to increase the life of the rail by retarding the rate of joint batter. During the five years in which the process by which this is done has been developed and applied, in excess of 275,000 joints, representing more than 1,000 miles of track, have been treated, with the result that there has been a definite prolongation of the life of the rail.

Characterized by simplicity and ease of application, the process consists of giving heat treatment to the running surface of the rail for about two inches back from the joint. It has been demonstrated that this hardens and toughens the metal to such an extent that the flow over the rail end ceases. The cost of applying the treatment is low, so that the results that have already been obtained far overshadow the relatively small expense involved, while the prospective benefits are still greater.

Heat Treating Was Started in 1927

Having noticed the effect of quenching on the life of frogs and crossings that were being reconditioned by welding, an investigation was undertaken in 1926 by the maintenance officers of the Milwaukee, to determine whether the same effect could be obtained in rails and joint batter retarded by heat treating them at their ends. As a result of this investigation, which included a large amount of laboratory research, 55 rails were treated and placed in service in July, 1927. The performance of these rails having been satisfactory, 5 track miles were treated in 1928 and 16.4 miles in 1929.

To and including 1928, the treatment consisted of heating the running surface to 1,450 deg. F., and quenching. During this period considerable trouble was experienced with shelling and chipping over the treated area. In 1928, it was decided to bevel the ends of the rails slightly by forcing a hot-cut chisel into the expansion gap between the rails while they were red hot. This resulted in some improvement but did not eliminate the shelling and chipping. In 1929, two important changes were made in the process. A coarse file was used to chamfer the rail ends before they were laid in the track. Reheating to 500 deg., F., after quenching, was also added in the expectation that it would eliminate the trouble from chipping and shelling.

Adopted as Standard Practice

These expectations were realized, but there was now considerable variation in the hardness of the treated metal. After further study, it was discovered that by raising the initial heat to 1,500 deg. and reheating to 650 deg., uniform and satisfactory results were obtained. This then was the stage of the development of the process at the beginning of 1930, during which year the treatment was applied to 116 miles of new rail. Hand methods having proved to be too slow and expensive, a power grinder was used that year to provide the V-shaped notch between abutting rails.

So far as can be observed, the desired results are being obtained, and the process is being applied as a regular practice to all new rail that is being laid and also to all other rail that has been laid since 1927. Up to October 1, more than 1,000 track miles of rail have been treated in this manner, or a total of more than 275,000 joints.

Established principles of heat treating are followed closely. There is some difference in the procedure, however, since the treatment is applied to the rails after they are laid in the track. The treating operations themselves are relatively simple, the sequence being (1) the chamfering of the rail ends, (2) the first heating, (3) the quenching, and (4) the reheating. It is necessary, however, to maintain a close control over the heating temperatures to avoid brittleness on the one hand and decarburization and softening of the metal on the other. Of equal importance is the precaution that a maximum hardness shall be obtained that is compatible with a toughness that will prevent chipping and shelling.

How the Work Is Done

A treating gang consists of three units, in charge of a general foreman and three assistant foremen. Each unit is comprised of 2 cross grinders, 3 heaters, 3 quenchers and 3 helpers. One of the latter does the reheating, another operates the motor car that pulls the outfit, while the third looks after the equipment on the cars. The equipment for one unit consists of several barrels of water, 20 cylinders of oxygen, 20 cylinders of acetylene and the necessary hose, torches and pressure regulators. The entire outfit is carried on several push cars which are pulled by a motor car. The torches, which are of special design to give an oversize flame, consume from two to three times as much gas as the ordinary heavy-duty type of welding torch. They are fitted with a shut-off button and a pilot flame so that the full volume of gas is used only while the heating is actually under way.

After the rail ends are chamfered, each of the three men with torches heats the abutting rails at a joint across the full width of the head for two inches back from the ends to a temperature of 1,500 deg. F. While an experienced operator is able to determine by eye with surprising reliability when the proper temperature has been attained, different intensities of light and changing atmospheric conditions require frequent checks on his judgment to insure that the heating will be to a uniform standard. These checks are made by the foreman with a contact pyrometer.

Quenching is started immediately after the proper temperature has been attained. The quenching equipment consists of a galvanized water pail and a quart can in the bottom of which a row of ⅛-in. holes has been punched. The streams of water from the bottom of the can are played upon the heated area until steam bubbles are no longer formed, the cessation of steam

Heating the Rail Ends to 1,500 Deg. F.

generation affording a convenient indication that cooling has progressed below the point of crystalline activity.

A similar torch is used for reheating the treated area to 650 deg. Since the visual indications in this case are not clearly defined, a stick of half-and-half solder is used as a check. If the silvery streak that is left when the solder is drawn across the heated metal turns to a golden brown immediately, the proper temperature has been attained. If the change in color is delayed, the heating must be continued. The rail is then allowed to cool naturally.

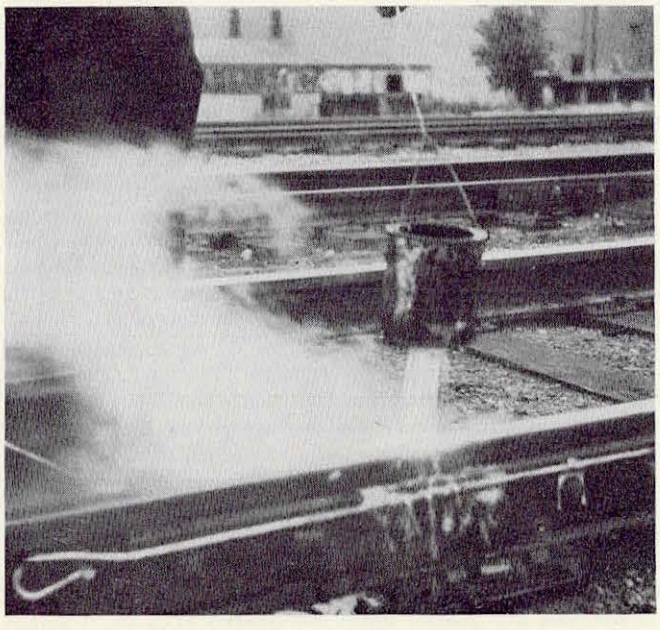
Close Control Is Necessary

Owing to the higher initial temperature and the lower final temperature of the drawing operation, one man can reheat as many joints as three men can heat. The average output in an 8-hr. day is 135 joints to a torch. This makes 400 joints for a unit, or approximately five miles of track for the entire gang. A single unit has, however, treated as many as 750 joints in 10 hrs.

Close control of the temperature and the time of heating is necessary to obtain the best results and insure uniformity. If the surface temperature is raised much above 1,500 deg. or the heating to this temperature is too long continued, there is danger of decarburizing the steel. On the other hand, if the temperature does not reach 1,500 deg., the desired hardness is not obtained and the results are not uniform. Again, if the surface is heated too rapidly, the unequal expansion develops shearing stresses between the heated and unheated zones of sufficient magnitude to cause incipient cracks and later shelling. The rise in temperature should be rapid enough, however, to localize the heat and avoid unnecessary consumption of gas. By properly training the operators and constantly checking their work it is not difficult to control the temperature of both the heating and drawing operations within a range of 25 deg., with 50 deg. as the widest permissible latitude.

From time to time specimens are sent to the laboratory for examination, and Brinell field tests are made to insure that the work is done uniformly and to the desired standard. The laboratory studies disclose that the metal is affected for only about ¼ in. below the surface. The Brinell hardness is increased from 260 in the untreated rail to 325 after treatment. Laboratory specimens show an average increase of 50 per cent in the elastic limit (from 70,000 lb. to 106,000 lb.) while the ultimate strength is raised from about 128,000 lb. to about 198,000 lb. In comparison with the untreated metal, the elongation of test specimens is reduced from 13.5 per cent to 7 per cent, and the reduction in area is increased from 17 per cent to 23.6 per cent.

Reheater Checking Temperature with Solder



Quenching the Heated Rails

It has been found to be more economical to do the treating after the rail is laid in the track. As a test, some rail was treated after it was distributed for use, but the gas consumption was doubled owing to the fact that four heats to a rail were required. This, together with the additional grinding and the necessity of turning the rail upright, increased the cost to 55 cents a joint as compared with 35 cents after the rail is laid. Treating cannot be done economically at a central point for the same reasons. In addition, the cost of handling and reshipping the rail would be prohibitive.

What Are the Results?

It is not claimed by the officers of the Milwaukee that this form of heat treatment will eliminate rail bat-

ter. The practice is so recent that the ultimate results can only be estimated. Sufficient rail has been treated and has been in service long enough, however, to give an indication of what may be expected. Flow of metal within the treated area apparently has ceased. In any case, there is ample evidence that the progress of joint batter is being retarded to such an extent that, so far as can be determined at this time, the process has already proved its economic worth.

Wear, except on the gage side of the high rail on curves, cannot be detected visually. It also requires the use of a feeler gage to detect any depression in the running surface in even the oldest of the heat-treated joints.

Those that can be measured do not exceed 0.008 in. on tangents, while many of them are as little as 0.004 in. None of these joints was treated, however, until the rail had been in service for several months, and it is believed that the depressions existed at the time of treatment. By way of comparison, it has already been necessary to recondition some of the joints in other rail that was laid at the same time and which has carried substantially the same traffic.

All of the experimental and development work and the details of perfecting the process has been carried out by the maintenance of way staff of the Milwaukee. M. D. Bowen, superintendent of work equipment and welding, has supervised the work and has been in active charge from the start.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended December 5 amounted to 636,366 cars, a reduction of 150,706 cars as compared with the corresponding week of last year and of 296,943 cars as compared with 1929. Loading of livestock, coal, and coke showed increases as compared with the week before the Thanksgiving day holiday. The summary as compiled by the Car Service Division of the American Railway Association, is given in detail in the next column.

Revenue Freight Car Loading

Week ended Saturday, December 5, 1931

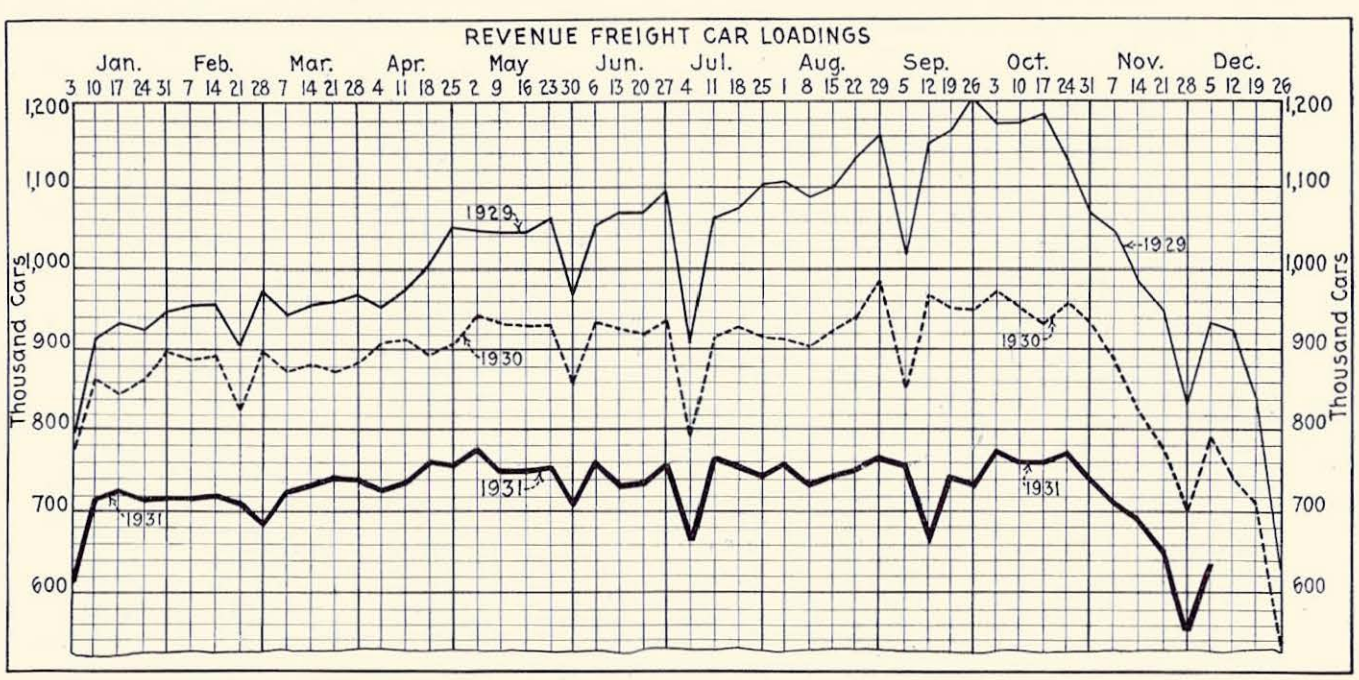
Districts	1931	1930	1929
Eastern	147,010	176,235	206,497
Allegheny	122,960	151,471	183,569
Pocahontas	37,715	48,111	55,701
Southern	93,967	121,475	138,339
Northwestern	78,337	95,608	114,365
Central Western	102,606	127,060	154,011
Southwestern	53,831	67,112	80,827
Total Western Districts	234,774	289,780	349,203
Total All Roads	636,366	787,072	933,309
Commodities			
Grain and Grain Products	32,659	40,095	48,000
Live Stock	27,286	27,610	31,269
Coal	130,097	175,970	211,783
Coke	6,488	9,524	12,447
Forest Products	20,302	34,977	52,927
Ore	3,406	6,063	8,808
Mdse. L.C.L.	202,573	223,047	247,465
Miscellaneous	213,555	269,786	320,610
December 5	636,366	787,072	933,309
November 28	558,807	701,050	836,310
November 21	653,503	779,752	949,716
November 14	690,366	829,023	982,926
November 7	717,029	881,517	1,048,968
Cumulative total, 49 weeks	35,635,515	43,883,464	50,422,900

The freight car surplus for the last week in November which included a holiday, averaged 659,346 cars, an increase of 42,662 cars as compared with the preceding week. The total included 340,502 box cars, 249,193 coal cars, 29,042 stock cars and 12,733 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended December 5 amounted to 49,444 cars which was a decrease of 2,864 cars from the previous week and 5,093 cars from the same week in 1930. Coal was lighter than for the previous week by 1,383 cars, miscellaneous freight decreased by 949 cars, grain by 864 cars, live stock by 365 cars and merchandise by 265 cars. The index number for merchandise loadings dropped from 88.68 to 86.76, but the index number for total loadings increased from 73.82 to 73.98.

Total for Canada	Total Cars Loaded	Total Cars Rec'd from Connections
December 5, 1931	49,444	21,471
November 28, 1931	52,308	20,224
November 21, 1931	53,164	21,869
December 6, 1930	54,537	29,846
Cumulative Totals for Canada		
December 5, 1931	2,451,249	1,229,608
December 6, 1930	3,014,134	1,618,760
December 7, 1929	3,370,377	1,995,332



Bureau of Safety Annual Report

THE Interstate Commerce Commission has issued in the usual pamphlet form the report of W. P. Borland, director of the Bureau of Safety, for the fiscal year ended June 30, last, together with some extracts from the annual report of the commission.

The number of freight cars inspected during the year, 1,396,184, is about the same as in the preceding four years. Of these, 1.89 per cent were found defective, a smaller percentage than last year and considerably smaller than in the three years preceding. Inspections of passenger cars and of locomotives show similar percentages as compared with preceding years. Airbrake tests were made on 2,603 freight trains, made up for departure, the proportion of brakes inoperative being found less than one per cent. Since the adoption of the present rules, in 1925, there has been a constant improvement in airbrake maintenance.

The tests of new types of airbrake apparatus, conducted by the American Railway Association, have been completed both at Purdue University and on the Southern Pacific tracks. Tests of automatic train-pipe connectors at Purdue, by the American Railway Association with the cooperation of the Bureau of Safety, have been completed, including the Robinson wing type; Robinson ball and funnel type; American wing and cone type; National ball and funnel type; and Roberts wing type.

The report notes the adoption as standard by the American Railway Association of the type E coupler.

Hours of service reports from 227 roads show a total of 7,089 instances of excess service, which number is 58 per cent less than in the previous year; and 738 other roads report no cases of excess service. The statement of instances in which employees remained on duty longer than 16 consecutive hours shows a gradual decrease, annually, for the last five years. The report of excess time worked by telegraphers shows a reduction of 62 per cent as compared with the preceding year. The principal causes have been sickness and death of employees and in employees' families. The report again criticises the general practice of temporarily releasing trainmen for short periods of time to evade the requirements of the 16-hour law, and calls for amendment of the law.

Automatic Train Control

Automatic train control apparatus has received final approval on 40 installations, making 70 now approved; and 10 installations await further improvement before final approval. Current inspections are made of all 80 installations and the report discusses needed improvements in practice. The usual tables are given showing the status of train control on all roads having such installations. The report notes the permission given to the Pennsylvania to use cab signals without automatic train control and consent to the Baltimore & Ohio for suspension of automatic train control rules, and movement of trains under special protection when, for example, important trains have to be detoured. A road thus suspending regular practice should report the circumstances to the commission in its monthly statement. The Great Northern has asked to be relieved from operating automatic train control but no decision is announced.

The report contains notes on the collisions and derailments which occurred on lines where automatic train control is in operation, seven of the collisions and five of the derailments having been investigated. This information is published, apparently, for the purpose of showing the variety of circumstances and conditions under which automatic train control is not to be expected to prevent collision or derailment. A typical case is that of an engineman who has passed a caution signal, has forestalled the application of the brakes, and then carelessly allows the speed of his train soon to become uncontrollable.

Near Bristol, Pa., on the Pennsylvania Railroad, March 16, two cars on an eastbound train fouled a westbound track and in so doing shunted the track circuit so as to give a cautionary indication in the cab of an approaching westbound freight, thus probably saving the freight from derailment by running into the wrecked cars.

Experiments by the American Railway Association have been made on a number of roads looking to the operation of different systems of automatic train control interchangeably. Eleven interesting examples of this kind are noted.

The report gives the usual block signal mileage statistics which have already been reported in the *Railway Age* (September 26, 1931, page 484).

Train Accidents

The number of train accidents investigated during the year was 66, and the causes are briefly classified. Apparatus for detecting and locating transverse fissures in rails have been operated over portions of 30 railroads during the past year and several hundred defective rails have been detected. Twelve of these detecting cars are now in service. On several roads the same sections of track have been checked a second time, and in some instances a third time. Committees of the A. R. E. A. and of rail manufacturers are investigating the causes of transverse fissures and, in conjunction with the University of Illinois, a five-year series of tests is planned. About 5000 tons of rail have been rolled for use in these tests.

The report repeats the warning, already made public in the case of an accident at Richards, Ohio, last May, that the danger from wrecks of trucks loaded with gasoline at highway crossings, calls for stringent laws to regulate the operation of such dangerous trucks.

The usual tables are given showing installations of automatic train control on each road where such system is used, with summaries by proprietors and types of devices; and of the total equipment of different types. Table No. 8 showing automatic train control performance in the year ended June 30, 1931, gives totals as follows: Number of trips 2,401,762; number of miles, 155,661,115; total operations 154,671,583; false restrictive operations 8,870 causes and 21,644 operations; false proceed operations, 13 causes, 16 operations. A separate table gives the cause of each false proceed operation.

"OUTSTANDING EXCELLENCE in the presentation of safety" is the title and substance of a certificate which has been awarded by the National Safety Congress to the Pennsylvania News (Central Region). This action is based on the result of a contest conducted by the Employees' Publication Section of the N. S. C., covering examinations of employees' magazines, throughout the year 1931. The Pennsylvania News is given first place on the basis of editorial contents and attractiveness in physical make-up.

Proposed Railroad Legislation

WASHINGTON, D. C.

ASSISTANCE to the railroads by protection from unregulated competition was urged by President Hoover in a statement issued on December 11, reviewing "the major parts" in "a definite program for turning the tide of deflation and starting the country upon the road to recovery" which he said was included in his recommendations to Congress in his annual message and in the organizations created during the past few months. Saying that part of the program is already in action but that part of it requires legislation—which is especially true as to the railroad part of his program—and that he was interested in its principles rather than its details, he appealed for "unity of action for its consummation". That the country may get this program thoroughly in mind he reviewed its major parts, including the following as to railroads: "Assistance to all railroads by protection from unregulated competition, and to the weaker ones by the formation of a credit pool, as authorized by the Interstate Commerce Commission, and by other measures, thus affording security to the bonds held by our insurance companies, our savings banks and other benevolent trusts, thereby protecting the interest of every family and promoting the recuperation of the railways." He also referred to the creation of the Reconstruction Finance Corporation to furnish necessary credit otherwise unobtainable under existing circumstances.

The bills introduced for this purpose provide that the corporation may "make loans to or aid in the temporary financing of steam railroads engaged in interstate Commerce, when in the opinion of the board of directors of the corporation such railroads are unable to obtain funds upon reasonable terms through banking channels or from the general public and the corporation will be adequately secured."

The first action toward a railroad legislative program taken in the Seventy-second Congress was that of the Senate committee on interstate commerce, which on December 10 favorably reported the resolution introduced the day before by Senator Couzens, chairman of the committee, providing for a general investigation and study by a joint Congressional committee, "of all matters affecting the operations of common carriers by railroad subject to the interstate commerce act, with a particular view to determining to what extent the federal government can aid during the present emergency in preserving continuous and efficient transportation service by railroad, in alleviating the financial difficulties in which many such carriers are involved, in relieving the distress of the unemployed railroad workers, and in preventing further unemployment among such workers."

While such an investigation might afford an opportunity to bring forward almost any proposition, there is a possibility that if it should be approved by the House and undertaken it might serve to head off the kind of an investigation recommended by the Interstate Commerce Commission, which had urged an "impartial and authoritative" investigation for the purpose of determining whether and to what extent carriers operating in competition with the railroads are receiving government aid amounting to a subsidy; and, if so, what steps, if any, are necessary to correct this situation.

Senator Couzens proposed that his investigation be conducted by four Senators and four Representatives, who, according to his plans, would be himself and Senators Watson, Indiana, Smith, of South Carolina, and Pittman, of Nevada, and Representatives Rayburn, of Texas, Huddleston, of Alabama, Parker, of New York, and Cooper, of Ohio.

Representative Rayburn, who has been elected the Democratic chairman of the House committee on interstate and foreign commerce, succeeding Representative Parker, of New York, has introduced a bill, H.R.5324, to carry out recommendations made by the commission in its report and by Dr. W. M. W. Splawn in his report to the committee at the last session, to broaden the commission's jurisdiction as to holding companies and acquisitions of railroad control. The bill was a reintroduction of the Parker bill of the last session plus paragraphs giving the commission authority to require a non-carrier company to divest itself of control of a railroad acquired since 1920 without commission approval; bringing within the commission's jurisdiction any acquisition of control of a railroad which would result in bringing that road into affiliation with any other, whether by holding company or otherwise; and giving the commission jurisdiction over the accounts and securities of holding companies permitted to control railroad carriers.

Mr. Rayburn also has introduced House Resolution 59 to direct the House committee to conduct an investigation of the ownership and control of stock, securities, or capital interests in any public utility corporation engaged in transportation or the sale of property, energy or intelligence in interstate or foreign commerce by holding companies.

Representative Hoch, of Kansas, has also introduced a bill, H.R.421, to carry out one of the commission's recommendations by including within the common carriers over which it has jurisdiction forwarding companies, "all persons, firms, or corporations who receive goods of others for transportation and combine the same in carload or less-than-carload shipments and cause the same to be transported—wholly or partly by railroad—and all persons, natural or artificial, engaged in such transportation as aforesaid as common carriers for hire."

Many Bills Re-introduced

Most of the railroad bills introduced thus far have been re-introductions of bills that have been before Congress in previous sessions without having been acted upon. These include one by Senator Capper to repeal Section 15a; Senator Howell's bill to amend Section 15a, for which the commission has now proposed a substitute; bills by Senator Trammell and Senator Hawes to provide for regional appointments to the Interstate Commerce Commission; bills by Senator Smoot to amend the routing paragraphs of Section 15, to provide for the compromise and settlement of claims held by the United States arising under Section 210 of the transportation act, and to provide for free carriage or reduced rates for state commissioners. The House bills include one by Representative Disney to amend the commodity clause and a similar one by Representative Hoch; one by Representative Crosser to provide for the appointment of a chief inspector and assistant chief inspectors of signal apparatus; one by Representative Igoe to abolish the Pullman surcharge; the Dyer bill to provide for the establishment of a travel division in the Department of Commerce; Representative Garber has introduced a bill to authorize the Interstate Commerce Commission to divide itself into

divisions consisting of one or more members, Representative McClintic has introduced a bill to authorize the legislature of each state to regulate the size, speed and license fee of all intrastate and interstate busses or trucks engaged in public business with its citizens. Representative Bacon has introduced a bill to provide for the regulation of common carriers by motor vehicle in the same manner as common carriers by railroad. Representative Howard has introduced a resolution to direct the Interstate Commerce Commission to establish reduced export rates on wheat and Representative Jones has introduced one to direct the Secretary of Agriculture to establish a freight-rate adjustment division for the benefit of agriculture.

Senator Johnson, of California, on December 15 introduced as S.1963 the bill drafted by the Shipping Board to provide for federal regulation by the Shipping Board of interstate transportation by water, including inland and coastwise transportation but excluding ferry boats running on regular routes. The bill provides for the filing of rates and their regulation by the board, for the issuance of certificates of public interest, etc.

Chairman Rayburn of the House Committee outlined his proposals with respect to transportation legislation in a press conference on December 16. He said he was having a bill prepared following closely the recommendations of the Interstate Commerce Commission as to a substitute for Section 15a, which he had always thought was too rigid and imposed impossible requirements on the commission. He said he was in favor of a repeal of the recapture clause, on the ground that it had not served the purpose of making loans available to weaker roads and that it imposes a tribute on thrift. It is his purpose to reach as many of the 19 recommendations of the commission as possible and he said they should challenge the attention of Congress but that they probably would be dealt with in separate bills. The recommendation for an investigation of competing forms of transportation will be taken up with the committee and Mr. Rayburn expressed the opinion that the proposed legislation for the regulation of buses should be made to include trucks, since the competition of trucks is now more acute than it was, but he said that the House committee may wait to see if serious efforts toward legislation on this subject will be made on the Senate side, as the House has once passed the Parker Bill.

Congress will also probably want to await the forthcoming report of the Interstate Commerce Commission on motor transportation, Mr. Rayburn said, but he thought there would be some legislation on the subject in the Seventy-Second Congress if not at this session. He intends to press his bill to extend the jurisdiction of the commission over holding companies and is particularly interested in the proposed investigation of holding companies in the utility field to supplement the investigation of those in the railroad field at the last session. He was not in favor of relaxing any of the regulation of railroads but thought there should be a reasonable regulation of their competitors, although not to the extent of putting any agency out of business.

He saw no necessity for additional consolidation legislation at this time but was not in favor of suspending the commission's authority as to consolidation as proposed by Senator Couzens at the last session.

Senator Couzens has indicated his intention of introducing a bill for the regulation of buses and trucks but not necessarily with the idea of pressing it at this session.

C. & E. I. Uses Power Machines in Stores Work

BETTER accident-prevention records and increases in shop output have been promoted on the Chicago & Eastern Illinois by the use of trackless power units for handling materials. The equipment consists of both electrical and gasoline-operated machines which have been installed at various times since 1922. Air pumps, side rods, pistons, pilot beams, tires, bolsters and other heavy parts in the roundhouse, shops and storehouse are handled by an electric crane truck which is in service almost continuously. The illustration shows a gasoline-operated crane equipped with a rigid hoist of unusual dimensions which adapts it not only for moving loads from one location to another, but also for unloading and loading car and locomotive materials from cars. This crane is equipped with a device for carrying trays and can be converted for towing work in a short time. It has been particularly useful in clearing roadways of snow and in dragging and repairing roads leading into the shops, and is also used in shunting cars.

Smaller tractors are constantly used for delivering material to and from the shops, and in moving material into cars for delivery to the line. Special trailers have been designed for moving driving wheels and truck

A Crane Tractor in C. & E. I. Stores Work

wheels, bar iron, channels and long material; also tires and other heavy parts of locomotives, and hopper-type trailers are used for handling blacksmith coal, sand, gravel and other similar material. The trailers, trucks and skids are placed in convenient places in the shops, and, when filled, are moved to their final destination by tractors. Some material is stored on skids and trays.

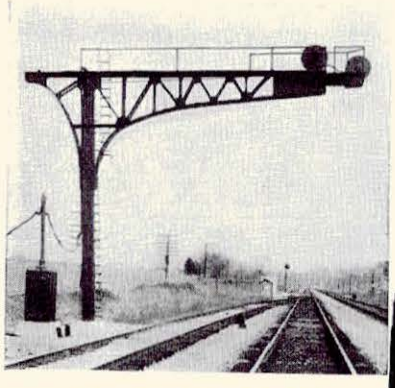
STORE-DOOR PICK-UP AND DELIVERY SERVICE for l.c.l. freight at no extra charge is being offered by the Atchison, Topeka & Santa Fe on its lines in California and Arizona. The pick-up and delivery operations are being performed by local transfer companies under contracts with the railroad.

Centralized Traffic Control Saves Time on the Santa Fe

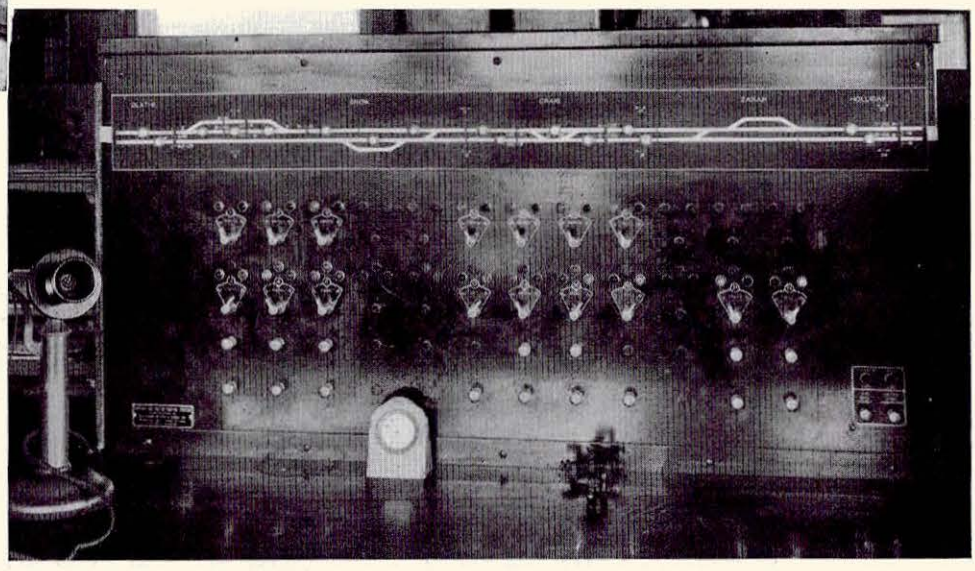
Trains operated in either direction on double-track grades saves 9 minutes for tonnage trains on 12-mile grade

By D. W. Fuller

Assistant Signal Engineer,
Atchison, Topeka & Santa Fe, Topeka, Kan.



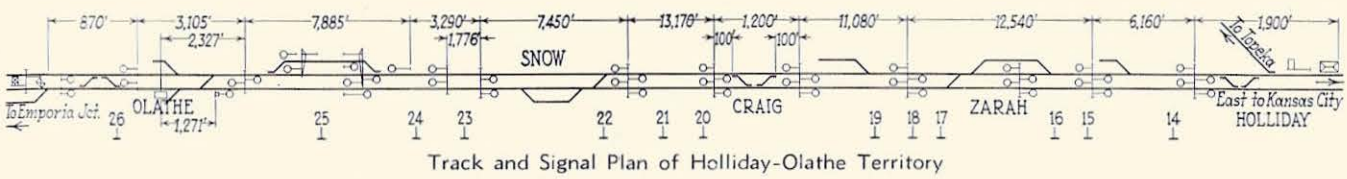
Signals at West End of Passing Track at Olathe



At Right — The Centralized Control Machine at Holliday

THE Atchison, Topeka & Santa Fe has installed centralized traffic control, including signals for directing train movements in either direction on both tracks, on a 12.2-mile section of double track between Holliday, Kan., and Olathe. This territory is a section of the main line handling traffic to and from the west coast, the Gulf and intermediate points. Starting at Holliday, 13 miles west of Kansas City, Mo., a single-track line runs via Topeka, Kan., to Emporia Junction, 113 miles, while the double-track line runs directly to Emporia Junction. A number of important passenger trains, as well as most of the through freight trains, are operated over this double track cut-off, and the daily average traffic in 1929, at which time consideration was given to this installation, included 20 passenger and 14 freight trains.

The line ascends at an average grade of 0.6 per cent practically all the way from Holliday to Olathe. Under the previous method of operation, with automatic block signaling for left-hand running only, train delays were frequently encountered. For example, if a freight train did not have time to run to Olathe ahead of a train on a faster schedule, it was held at Holliday. The same was true to a certain extent with eastbound trains out of Olathe. In other words, this Holliday-Olathe section, involving a long grade which retarded the movement of westbound tonnage trains, was the "bottle neck" of the operating district. The solution of the problem was to increase the track capacity so that any train could be accepted and operated through the section without delay, even with other trains ahead or following. Previous to the development of centralized control, studies were made to determine the best possible method of increasing the track capacity between these two points and consideration was given to the construction of a third track. Based on an investigation made in 1929, it was decided, however, to install centralized traffic control.



Track and Signal Plan of Holliday-Olathe Territory

By installing centralized traffic control, including either-direction operation on both tracks, the necessary

increase in track capacity on the existing two tracks has been effected satisfactorily. In order that trains may be diverted from one track to the other readily, two No. 20 crossovers were installed at Holliday and two at Craig, which is midway, while two No. 14 crossovers were installed at Olathe, where slow-speed movements prevail. The passing siding at Olathe will hold a train of 156 cars and is, therefore, an important part of the track layout. A siding at Zarah is not long enough to hold a tonnage train and is little used except by the local freight when switching the elevator track. Likewise, a short siding at Snow is used only by the local freight when switching. These switches, as well as the crossovers at these stations, are operated by hand-thrown stands, the same as previously, switch indicators being provided to inform trainmen of approaching trains on the main tracks.

The switches for the six crossovers at Holliday, Craig and Olathe and for the two ends of the passing siding at Olathe, are power-operated and, together with the signals for directing train movements and the automatic signaling, constitute the new operating facilities. The crossovers in Olathe, at the west end of the territory, are controlled from a desk-lever interlocking machine handled by the operator in the Olathe station, while the control of the crossovers at Holliday is included in the existing electric interlocking plant at that point. A centralized traffic control machine, also located in this Holliday tower, controls the crossovers at Craig, the passing track at Olathe, and the signals which direct train movements over the entire territory between Holliday and Olathe.

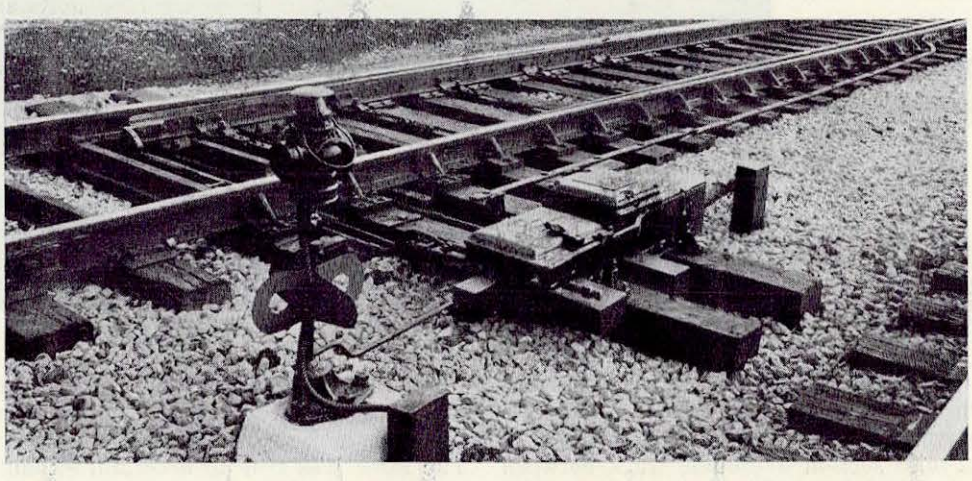
The operator in charge of the centralized control machine at Holliday receives directions from the dispatcher at Emporia. An illuminated track diagram on the centralized control machine indicates continuous track occupancy on both tracks between Holliday and Olathe, so that the operator knows just where each train is and can so inform the dispatcher. A track diagram with the same signal and track layout and lettering is provided in the dispatcher's office, enabling the operator, by calling the name of a letter, to advise the dispatcher of the location of each train at any time such information may be requested.

Ordinarily trains are operated on the right-hand track, although when two trains are moving in the same direction, the faster train is diverted to run left-handed around the slower one. In most cases this arrangement makes it possible to eliminate delays to freight trains which may be running on short time ahead of faster trains. The saving in train time is of benefit not only on this territory, but also on adjacent sections. For example, it is often possible for a tonnage train not only to run ahead of a passenger train over the Holliday-Olathe section, but because of the time thus saved, to run on to Ottawa Junction, 31 miles west of Olathe, where the freight can take water, do certain switching and be ready to follow the passenger train from that point. In such cases, considerable time is saved by freight trains as compared with the previous operation in which they would have been delayed on account of being held for other trains to run around them. The freight trains average 90 cars each and are handled by the same locomotives formerly used on this territory. Therefore, when there is no interference between trains, there is, of course, no opportunity to save time.

Table Showing Results of Train Operation June 15 to July 15, 1929-1931

	Number of Trains Run 1929			1931		
	Pass.	Frt.	Total	Pass.	Frt.	Total
Carded passenger trains	651	...	651	620	...	620
Total freight trains	...	429	429	...	282	282
	651	429	1,080	620	282	902
Total number freight cars handled	38,460			25,482		
Average number of cars per freight train	90			90		
Time consumed by freight trains	325 hr. 2 min.			168 hr. 41 min.		
Average time per freight train	45 min.			36 min.		

In order to get the facts as to the benefits being effected by the new system of operation, the dispatchers have kept a record of the time saved. For example, a comparison of the operation for one month, June 15 to July 15, 1931, with the corresponding period for 1929 showed an average saving of 9 min. in the time required to operate a westbound train up the grade; this is a 20 per cent reduction. For the 282 freight trains operated in the month, the total saving was 42 hr. 18 min.; also further reductions in delays resulted by reason of closer meeting points at points beyond the limits of the territory, savings in fuel and water, etc.



Power-Operated Switch With Target Stand

The automatic block signals formerly in service on the Holliday-Olathe territory were of the semaphore type. These signals were replaced by new automatic signals, which with those used for directing train movements, are of the searchlight type. On most of the territory, the main-line signals are located on bridges except through Olathe where there was not sufficient right-of-way to erect the bridges, and, searchlight-type dwarf signals were, therefore, used. As the tracks are in a city street in this section, the speed of trains is limited and the use of dwarf signals has proved satisfactory.

A unique feature of the signals used on this installation is the fact that the lamp has two separate fila-

ments, one rated at 13 watts and the other at 3.5 watts. The lamp is so designed that the 13-watt filament will burn out first, with an adequate factor of safety so that the other filament will continue to burn for an extended period thereafter. The illumination in the signal is, of course, materially reduced, so that the enginemen and the maintainers at once notice the difference and a new bulb is installed. However, in the meantime, the 3.5-watt filament gives enough light to afford a signal indication so that no train delays are occasioned by the absence of a signal.

As a part of the new installation, an independent telephone circuit was provided, with a telephone located in a booth near each power-operated, as well as near each hand-thrown, switch. These phones are useful in case any unusual condition arises, and at hand-thrown switches must be used frequently as the rules require trainmen to receive permission from the operator at Holliday before occupying the main line, and the same rule applies for switching operations at the power-operated switches.

The straight alternating-current system of power supply and operation was used on the old semaphore automatic signaling, the distribution system being at 4,400 volts 25 cycles. When installing the new signaling, the power supply was changed over to the a-c. floating system, the distribution being changed to 2,300 volts, 60 cycles. Storage batteries charged by rectifiers are used for the operation of the switch machines, track circuits and line-control circuits. The signal lamps are rated at eight volts and operate normally on a-c., but in case of a power failure they are switched to the storage battery supply.

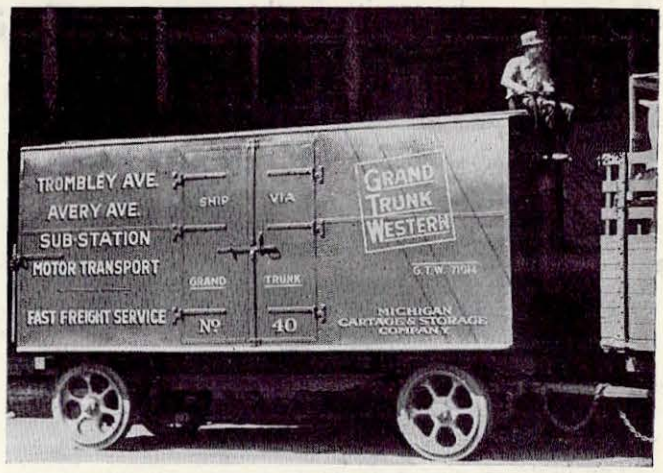
All of the equipment required for the new system, including the signals, dual-control switch machines, coded centralized control machine and related apparatus, was furnished by the Union Switch & Signal Company. The construction was handled by the Santa Fe signal department forces, an interesting feature of the program being that the old signaling was kept in service until the new system was complete, the change-over being effected without a single train delay.

* * *

Courtesy Great Northern Railway

Completing the New California Connection of the Great Northern and Western Pacific

Arthur Curtiss James of New York, the largest individual stockholder in the Great Northern and the controlling factor in the Western Pacific, driving the golden spike that marked the completion of the year's most important piece of new line construction. As described in the *Railway Age* for November 14, page 749, the ceremony took place on Tuesday, November 10, at Bieber, Cal., where a 91-mile extension of the Great Northern, running south from Klamath Falls, Ore., joins a 112-mile Western Pacific line north from Keddie, Cal.



"Box Car" Trailer Used by G.T.W. in Detroit

"Box Car" Trailers Speed G.T.W. Freight Service

HIGHWAY trailers which are replicas of railroad freight cars, even to the grab irons and the hand brake, are being used by the Grand Trunk Western in Detroit, Mich., to reduce the time in transit on l.c.l. shipments between Detroit and Chicago.

In Detroit the outlying freight houses of the railways are situated at a distance of several miles from the main station. Formerly transfers between these substations and the main stations were accomplished by railway switching movements. L.c.l. shipments delivered to these substations on one day did not arrive at the main station, after the switching movement, until late at night, and they remained there until the following morning before continuing on their way to destination.

Under the present arrangement, shipments delivered to the substations as late as 3 P.M. are trucked to the main station, where they are loaded into outbound trains for departure the same evening. In many cases delivery is made at destination the next morning. The same time-saving is also provided in handling inbound shipments which, on the arrival of inbound trains at the main station in the morning, are at once forwarded by truck to the substation where they are available to the consignees before noon. On the complete movement from origin to destination, a saving of approximately 24 hr. is made through effecting these transfers by motor trucks.

Trailers Operated Under Contract

In Detroit the Michigan Cartage and Storage Company is under contract with the Grand Trunk Western to handle the transfers of l.c.l. freight between the substations and the main station. This company built the special "box car" truck bodies which carry the Grand Trunk Western trademark and which are used entirely in the service of the railway. In addition to providing a means of faster freight service, these "box car" trailers are a permanent and valuable advertisement of the fast freight service available on the railway.

RAILROADS IN TEXAS are considering the establishment of taxi service at certain points for the convenience of passengers traveling to those points by rail. Under the plan the patron will be furnished transportation from the point at which he boards the train to his hotel or home at the point of destination.

Communications and Books...

N. I. T. League's Position Defended

WASHINGTON, D. C.

TO THE EDITOR:

The leading editorial in the *Railway Age* of November 28 contains a bitter attack upon the National Industrial Traffic League. It is, of course, proper for any one to disagree with the purposes and work of the league and to express his views in public. Your editorial, however, contains some statements which certainly should not be left unchallenged before the public. Some of these are in the nature of implications and some are direct statements. You plainly imply that you accuse the organization of favoring government ownership of railways. The record of the league should be so well known to you that certainly there can be no justification for the accusation. It is possible that you reach your conclusion from your understanding of the action taken by the league in the recent proceeding before the commission, known as Ex Parte 103.

The implication seems to be that the league representatives endorsed, as a proper governmental policy, a pooling of railroad revenues. It was made very plain that the league neither advocated nor condemned such a plan and that it was only suggested for consideration because of the statements made by proponents of the carriers' petition that there were some carriers which would likely be unable to earn their interest charges in 1931, and were in danger of receivership and other serious difficulties. The suggestion was made for consideration as a temporary emergency matter and it came out of reading the provisions of the Transportation Act, 1920, which made it lawful to pool earnings under approval of the commission. If such a serious emergency existed it was thought that this might be considered for it was apparent that even the 15 per cent increase in rates might be insufficient to enable some of the carriers to meet their fixed charges during the coming year.

In your editorial you make the following statement:

> There is a persistent rumor that the suggestion that the league should inject the plan into the hearings was first made by a very influential member of the commission, and that, anticipating its adoption, representatives of the league introduced it to show by the outcome how much influence it and its lawyers have with the commission.

The same issue of your periodical contains, on page 824, an account of a part of the proceedings of the annual meeting relating to the report of the special committee on Ex Parte 103 and to the carriers' proposal of certain changes in the pooling plan. In connection with that report the chairman of the committee stated that such a rumor had been heard and that there was absolutely no foundation for it. This statement was made, not only in behalf of the committee, but in behalf of counsel who represented the league. Even if this part of the proceedings was not brought to your attention it would have been very easy for you to ascertain the facts if you had made inquiry.

You state that the Executive committee of the league originally voted by a small majority that the league should not appear in the general advance rate case and that, later on, the day before the hearings began, advocated at a meeting attended by a much smaller number of its members that the league should be represented. For your information, the action taken at the first meeting raised such a storm of protest from shippers who were members of the organization that notice was given of the second meeting for the purpose of reconsidering the action. Some of those at the first meeting who voted against participating in the proceedings were not able to appear, but submitted their views in writing, all of which were read and considered. Although there were 25 members of the committee present, representing all sections of the country, there was no dissenting vote as to the action taken.

Your statement that a small minority have for years dominated the organization and its policies is a plain implication that there is a minority "gag rule" in effect in the organization. Such a statement is absolutely without foundation and here, again, if you had taken the trouble to inform yourself of the facts, they would have been cheerfully furnished.

General policies adopted by the league have been almost without exception adopted originally at annual meetings of the membership and in the case of the exceptions they have been presented to the next annual meeting of the membership for approval or disapproval. Proposed action is invariably distributed to all members substantially in advance of the annual meetings, and it is not infrequent for the annual meeting to reach a conclusion contrary to action which has been recommended by specific committees. I doubt if we have ever had an annual meeting at which the majority in attendance consisted of traffic managers of chambers of commerce.

In the latter part of your editorial you refer to a statement of principles adopted by the organization, which declaration is set forth in the account of the meeting given on page 822 of the same issue. In your effort to impugn the motives of the organization in making this declaration, you undertake to read into it language which is wholly at variance with the plain statement of the principles. So far as we know, no railroad executive who participated in the conference has disagreed with these principles.

The report of the committee which you have quoted states with respect to these principles that "in developing concrete proposals it becomes difficult to reconcile conflicting opinions in their application." As a matter of fact the majority of these principles were gleaned from the brief filed by the Association of Railway Executives in behalf of the American railways in the investigation by the Interstate Commerce Commission with respect to motor vehicle transportation known as I. C. C. Docket 23400. There can be no possible inference from anything that has been said in connection with them that these declarations imply an advocacy of government subsidy for competing transportation agencies.

On the other hand, it is specifically stated that "reasonable compensation should be paid for the use of public highways by commercial vehicles." This is just what the railroads have been advocating, so far as we can tell. It was also stated that any permanent policy of governmental operation of transportation agencies is contrary to the public interest. This also is what the railroads have been advocating. It is further stated that efficient railroad transportation is essential to the commerce and welfare of the country as a whole. We should think that your publication would appreciate such a statement coming from a national organization of shippers at this time.

In the declaration of principles as adopted there was nothing said about advocating giving the railroads greater freedom to meet the competition of competitive agencies and hence your caustic criticism of this phrase is not in order. The only action taken upon this was the adoption of a provision asking that the Interstate Commerce Act be amended so as to permit rail carriers to make joint through rates with highway transport agencies. Since your account of the meeting contains no reference to this action it may be of interest to you to know just what it was. The action taken was in the following language:

"Your committee further recommends that the Interstate Commerce Act be amended to permit rail carriers to make joint rates with passenger or freight motor vehicle lines and place such motor vehicle lines under the jurisdiction of the commission to the extent that the two classes of transportation make joint rates, that is to say, substantially to the same extent that water lines are now subject to the act where they publish and file with the commission joint rates with the rail lines; in like manner rail, water, and motor vehicle lines should be permitted to file through joint rates and be subject to like jurisdiction."

In your editorial you plainly imply what is stated in the headline on page 822 which refers to the annual meeting of the league: "Members at annual meeting vote to oppose any truck and waterway legislation carriers may try to secure."

The quoted statement is not correct. The league favors strict regulation of motor vehicle transportation in the interest of public safety and security and favors uniform state action which will bring this about. This is what the railroads want. The

league favors legislation to encourage co-ordination of rail and highway transportation. Some of the railroads have publicly advocated legislation of this character. As above stated, the league favors requiring motor vehicle transportation to pay adequate compensation for the use of the highways, and therefore, is opposed to a subsidy, although you plainly imply the contrary. The league favors liberalization of the Fourth Section which has been advocated by the railroads for several years. We specifically went on record as favoring provision for authority to depart from the Fourth Section in meeting truck competition. We understand that the railroads also advocate this.

To say that the league will actively oppose all efforts at legislation attempted by the railroads to secure waterway legislation is also inaccurate. While the league has been opposed for years to placing port to port rates under the jurisdiction of the Interstate Commerce Commission, it has declined to take action upon proposals which have been made with respect to regulation by the Shipping Board or other agencies. The mere fact that the league can not go the whole way with all that the railroad declaration of policy involves should afford no more occasion for criticising the league than for criticising these railroad executives who do not agree with all of the features in the so-called declaration. It is a well-known fact that not all the railroads are of the same mind as to how far legislation should go, but those who have a different opinion are no doubt in good faith.

Your editorial appears to be occasioned by action of the league in two matters, one being its connection with Ex Parte 103, and the other being the report of the special committee appointed to exchange views with a committee of railway executives.

As to the first, it was the unanimous opinion of the commission that the carriers had not made a case justifying a general increase in freight rates and the pooling plan was suggested not as being required of them, but as a voluntary action, upon which the only compulsion attending its operation would be the compulsion upon the shippers to provide the pool. The railroads later presented an alternative plan to the commission and the league offered no opposition thereto. The decision of the commission this week on this petition will have the effect of providing something over $100,000,000 a year, which, it is hoped, will be used for the benefit of those railroads that most seriously need it. Had not some suggestion come for emergency measures, the railroads would not have enjoyed these rate increases. You seem to think that the railroads are being required to pay their revenues to a pool to assist their weaker brethren and this shocks your conscience, but the real facts are that certain classes of shippers are being called upon to raise a revolving fund for the benefit of the railroads during an emergency. Just why a railroad publication should criticise the shippers' organization for having been responsible for a suggestion out of which this came is beyond my comprehension.

The other subject refers to a committee of which the writer was chairman. We held meetings with the committee of railway executives and we had a full, free, and frank discussion of all features of the Railroad Declaration of Policy. Upon some matters we found ourselves in accord with the railroads, while upon other matters we were unable to subscribe to their views. However, the discussion was certainly beneficial in that each side was able to develop the viewpoint of the other. There should be no criticism of either side that they were unable to reach agreement on any of the matters. It was understood from the beginning that, to the extent that we did not agree, each group was free to go ahead with contrary plans. All this has been accomplished and to my mind it will ultimately result in a better understanding between shippers and carriers. In formulating our declaration of principles the committee was sincerely trying to find a common ground upon which both shipper and carrier could stand.

The National Industrial Traffic League has always undertaken to do what it considered to be for the ultimate best interest of the shipping public. In many matters it has supported legislation and other action undertaken by the railroads. Necessarily, matters sometimes arise where there is a conflict of opinion not only between the railroads and the shippers but between railroad men themselves and between the shippers themselves. Your undisguised effort to call the league representatives on the carpet to explain to their superior officers why they have taken such action strikes no fear into that organization. There are few traffic managers who venture to take action on any of these matters without first having presented them to the executive officers of their organizations.

R. C. FULBRIGHT.

New Book

The Interstate Commerce Commission, Part I, by I. L. Sharfman. 333 pages, 6 in. by 9¼ in. Bound in cloth. Published by the Commonwealth Fund, New York City. Price $3.50.

This book, the first of a contemplated four-volume study in administrative law and procedure, is sub-titled "The Legislative Basis of the Commission's Authority" and commences a treatise which has as its ultimate objective "an appraisal of the Commission's work, with special reference to its permanently significant characteristics." Subsequent volumes will consider in turn the scope of the Commission's jurisdiction, the character of its activities and the nature of its organization and procedure; the chapter outlines of these are included in the present volume's introductory pages.

Part I, aptly aided by background-building footnotes, traces in scholarly fashion the development of the legislative structure under which the Commission operates from the antecedents of the 1887 federal legislation through the 1906, 1910 and other amendments and the war experience to the enactment of the Transportation Act of 1920. Special attention is given to the development of safety legislation, the culminating provisions of which "reflect the established status of the Commission as the dominant federal agency for control of all aspects of the railroad industry."

The aim of the author, to use his own words, was to avoid "a mere recital of the prevailing statutory duties to which the carriers are subjected and of the prevailing statutory powers which reside in the Commission. The emergence of these duties and powers was traced as an historical evolution, with special emphasis upon the part played by the Commission in moulding their development." This approach was chosen because, while "The character of the original Act to Regulate Commerce was largely influenced by the then existing state statutes and by British practice, the amendatory and supplementary enactments. . . . . have been the outcome predominantly of the Commission's administrative experience. . . . . While congressional response has often been tardy, it has seldom swerved, in essence, from the direction of the Commission's recommendations."

In his discussion of developments since the passage of the Transportation Act of 1920, which marked "the beginning of a new approach in railroad regulation," the author becomes somewhat alarmed over the enactment of measures through which Congress has sought, directly, to further special ends. The Hoch-Smith resolution is cited as the most important of these since "it represents a type of Congressional interference for the advancement of special interests which may seriously threaten the independent performance of the Commission's tasks. . . . . The exertion of political pressure, whether directly and crudely upon the Commission and its personnel, or more subtly, through the apparently legitimate channels of Congressional enactment, is fundamentally subversive of the character and potentialities of the administrative method of rate regulation." Also, in commenting upon the Commission's authority over extensions, Professor Sharfman cites the recent order requiring the Oregon-Washington to construct 185 miles of line and holds that such power over capital expenditures "inherently involves a high level of informed judgment." The general conclusion is nevertheless reached that, although governmental regulatory measures have been extended over the railways in sweeping fashion, "there is well nigh universal agreement today that the drastic limitations upon freedom of private enterprise imposed thereby (in their general direction if not in all specific details) are not only salutary but indispensable."

The book, apart from its embodiment of a carefully organized and well integrated exposition of its subject, is a literary work of high quality; it is adequate assurance that the four-volume treatise of which it is Part I will became a notable addition to the literature on the Interstate Commerce Commission.

Odds and Ends . . .

Dredging Up History

A government snag boat is now dredging the Missouri river near St. Charles, Mo., to clear the channel of the wreckage of the old Wabash bridge which collapsed in 1879. Portions of the bridge and of the freight train which went down with it have been brought to the surface.

Magazine Has Anniversary

Congratulations go to the Santa Fe magazine which has been published continuously now for 25 years. The first issue, which made its appearance on December 1, 1906, consisted of 36 pages and contained articles on the reconstruction of San Francisco, following the fire; the 1800-class balanced-compound, Prairie-type locomotives, 56 of which were then being delivered to the Santa Fe by the Baldwin Locomotive Works; and one entitled "The Salary Loan and Its Evils." One news item proudly stated that "on November 15, more cars were loaded on the system than on any previous day in the history of the road—3,926 cars constituting the new record."

A Traveling Railway Club

The Pacific Railway Club, out on the western rim of the continent, has established several new records during its 15 years of existence. It has 12 meetings a year instead of the usual eight or nine of other railway clubs. Eight railroad presidents and one chairman of the board were at the speakers' table at its last annual meeting. For some years, this organization has alternated its meetings between San Francisco, Cal., and Oakland, but during the past year meetings have been held also in Los Angeles, Cal., and Sacramento, and Salt Lake City, Utah. That the Pacific Railway Club has a reputation "out west" for good programs is evidenced by audiences of over 300 in Salt Lake City and 260 in Los Angeles.

Help Wanted—Linguists

Like other railways, the Chicago, Milwaukee, St. Paul & Pacific receives many letters written in foreign languages. These have to be sent to a translation bureau before they can be answered, with the result that delays often ensue. Just now the company is expecting more of such letters than ever, because it has started a series of advertisements in papers published in German, Italian, Norwegian, Swedish, Polish, Hungarian, Finnish and other foreign languages. How to get these expected letters translated promptly might have been a pretty stiff problem if the Milwaukee magazine had not taken a hand. It has asked those of its employee-readers, who are familiar with foreign languages, to make themselves known and to volunteer their services.

How He Got His Nickname

Stories of how men get their nicknames are always interesting. For instance, here is how D. P. Miller, retired Pullman conductor, came to be known as "John the Baptist." On March 5, 1904, according to the Pullman News, Mr. Miller was making his second trip out of Oakland on a Southern Pacific train bound for Chicago. He had two passengers destined for Suisun, and not having learned the territory, he was told by the train conductor that Suisun would be the next stop. The train halted and the two passengers hurried to the vestibule, accompanied by Mr. Miller who said, "Just wait until I place the stepping box for you." With the box in one hand and a lantern in the other he peered out. It was a dark night and rain was falling, and when the lantern's rays showed water below, Mr. Miller simply concluded it was a puddle on the station platform. He stepped off. It was a step of some 20 ft., however, for the train had stopped on a trestle over a portion of Suisun Bay. It was into this same portion that Mr. Miller descended. Fortunately, he was a good swimmer and he managed to overcome the handicaps of the strong current and his heavy uniform. When he got his bearings, he was about 15 ft. downstream from the trestle. He swam back but could get no farther than about midway between the ends of the Pullman car. He was unable to climb the slippery piles, so the Pullman crew attempted a rescue by lowering sheets from the section windows.

This did not work, however, because of insufficient strength in Mr. Miller's left hand, so he suggested that the bell cord—which in those days extended the full length of the train—be lowered to him. He tied this under his arms and was pulled up after 45 minutes in the bay. From that night until the day of his retirement, Mr. Miller was known on the Southern Pacific as "John the Baptist," in token of his total immersion while on duty.

This department would be glad to know the stories of how other railroad men, of whatever rank, came to acquire their nicknames.

More Civics a la Carte

Some weeks ago we told how the Lackawanna is contributing to the mental development of its dining car passengers by printing on the back of its menus a list of the states, with their capitals, governors, state flowers and nicknames. Having noticed a favorable reaction to this novelty in dining car service, the road is now making civic lesson No. 2 available to its passengers. In this case the menus are showing the membership of the United States Senate, with the states they represent, their political affiliations, and the years when their terms expire.

Better Weather

("In the train of the future all windows will be hermetically sealed, and winter or summer the cars will be permeated by balmiest June weather."—American forecast of one of the ways in which the train service will ultimately be restored to general popularity.)

I like my little puff-puff
  In which I warmly ride,
Protected from the rough puff
  Of breezes cold outside.
'Tis not for me to grumble
  'Cos windows won't let down;
My mood is far more humble
  When I set out from town.

Secure from rain and raw gust
  In third as well as first,
I watch an English August
  Resolved to do its worst.
Distressing weather bounds me
  On many a sodden field—
Yet "balmy June" surrounds me
  "Hermetically sealed."

For here I find provided
  The summer of my dreams,
Though August has decided
  On less attractive schemes:
In such a weary welter,
  Inspector, tell me true—
Why should I leave this shelter:
  Why can't I stay with you?

Why should my year's vacation
  Be wasted as before
In dampish desolation
  On promenade or shore?
I don't think I can stick it,
  The wiser course is plain—
I'll take a season ticket
  And spend it in the train.

Lucio, in the Manchester Guardian Weekly.

NEWS

New England Governors Oppose Four-System Plan

Opposition to the plan of the eastern railroads for a four-system merger was expressed by the governors of five New England states in an intervening petition filed with the Interstate Commerce Commission, which is to begin hearings on January 6 on the application of the roads for a modification of its own five-system plan. The petitioners are Governors Wilbur L. Cross, of Connecticut, William T. Gardiner, of Maine, Joseph B. Ely, of Massachusetts, John G. Winant, of New Hampshire, and Stanley C. Wilson, of Vermont. It was charged that the four-system plan of the Baltimore & Ohio, Pennsylvania, New York Central, and Chesapeake & Ohio, would not carry out the purpose of Congress but would tend to diminish competition and to close existing channels of trade and commerce. One of the points made was that the plan contemplates the reallocation of the Delaware & Hudson and four other roads that connect directly with New England lines to the four systems and that this would diminish the equality of access of the people and railroads of New England to so-called trunk line roads. The petition explained that the people of New England are dependent for many of their rail connections with other sections of the country on the lines in trunk-line territory and that many of the relations of the New England roads with the trunk-line roads would be changed by approval of the four-system alignment. The commission was also asked to require the Pennsylvania Railroad and the Pennroad Corporation to divest themselves of their stock holdings in the New Haven and Boston & Maine roads in some manner that would eliminate effectually the influence and participation of the Pennsylvania in the management and conduct of the two major New England carriers.

In the event the commission should approve the four-system plan, the governors ask that a general requirement be made that none of the four systems should acquire, directly or indirectly, any stock or voting power in New England lines.

Reading Extends Widely Its Trucking Operations

The Public Service Commission has granted to the Reading Transportation Company certificates authorizing common carrier motor truck operations on all routes applied for as reported in the *Railway Age* of November 28, page 838. These routes total 267 miles and include the following: Philadelphia to Pottsville, 93 miles; Pottsville to Lykens, 40 miles; Harrisburg to Allentown, 89 miles; and Reading to Lancaster and Columbia, 45 miles. These new lines are being brought into operation as rapidly as possible.

The company has also established interstate common carrier truck lines between Philadelphia and New York, and Harrisburg and New York. Heretofore the company had restricted its trucking operations to station-to-station service.

Signal Section to Meet in Chicago

The thirty-eighth annual meeting of the Signal Section, A. R. A. will be held at the Stevens Hotel, Chicago, on Tuesday and Wednesday, May 10 and 11, 1932.

Central Railroad Club Annual Meeting

The Central Railroad Club will hold its annual meeting and banquet at the Hotel Statler, Buffalo, N. Y., on January 14, 1932. Samuel B. Bosford of the Buffalo Chamber of Commerce will act as toastmaster while H. G. Taylor, manager of public relations, American Railway Association, will deliver the principal address. Members of the New York Railroad Club and others desiring to attend will be accommodated on a special train which the Delaware, Lackawanna & Western has scheduled to leave New York at 6 o'clock on the evening of January 13.

Stickers on Checks Help Katy Employees Solicit Business

As a means of soliciting business for their railroad, in line with a suggestion made by one of their number, employees of the Missouri-Kansas-Texas Lines are to be provided with gummed stickers attachable to personal checks issued in payment of accounts or for purchases, calling attention to the fact that the check has been drawn by an M-K-T. employee. The stickers, which will be made available to all employees through regular department channels, are to be attached to the back of the check with the message folded over its face, in such a way that, if desired, the label may be removed by the recipient before passing the check through a bank.

In addition to the standard emblem of the Katy, the sticker is printed with the following message:

"Issuance of this check is possible because the signer is employed by the Missouri-Kansas-Texas Lines. The Katy is a local tax payer, and employs a number of men at this point. If more freight were shipped via Katy and if more people rode our splendid passenger trains, we would have larger payrolls and the Katy would be an even greater factor in the prosperity of our community. May we count on you for full 100 per cent co-operation?"

What Happens to Cities Which Vote Bonds for River Terminals

"As a sidelight upon the operations of the Inland Waterways Corporation," writes Thomas F. Woodlock in the Wall Street Journal, "it may be profitable to spend a few minutes on consideration of the Peoria Barge Terminal which was formally opened last summer." An abstract of his further observations follows:

This enterprise was undertaken as an adjunct to the Federal Barge Line, but is the property of the City of Peoria. A bond issue of $400,000 was provided and sold upon terms which required annual payments for interest and amortization of $30,881 on an annual average for 19 years, which with insurance, brings the average annual payments of the city to $31,213, excluding maintenance and depreciation. To meet the annual charges for interest, amortization and insurance, excluding maintenance and depreciation, there will have to be handled 312,000 tons of revenue freight per annum. This must be done during the navigation season, i.e., nine months, which indicates a monthly revenue tonnage requirement of something under 35,000 tons. Thus far, for three and one-half months to September 30, the total revenue tonnage handled at the terminal was 13,177 tons, an average of something under 4,000 tons per month. The discrepancy is so large as to indicate that the City of Peoria has made a pretty bad bargain.

While upon this subject, let us also look at Dubuque. Some four years ago this city built a water terminal for the exclusive use of the Federal Barge Line at a net cost (to April, 1930) of about $371,000. The city has outstanding $347,000 of bonds calling for average annual payments to 1947 of about $29,000. In order to collect this amount the traffic through the terminal must amount to about 193,000 tons per annum, and this must move during a navigation season of about eight months—a monthly requirement of some 24,000 tons. In the last two years tonnage has been only one-fifth of the amount necessary to give the city its outgo on bond interest and sinking fund and insurance. The net loss to the taxpayers of Dubuque on this enterprise to the end of the fiscal year, 1930-31, amounts to over $58,000, exclusive of depreciation.

Notwithstanding this showing, it is now proposed that the city issue $150,000 bonds to construct a coal dock to be leased to a West Virginia corporation at a rental of 5 cents a ton on coal handled over the dock. This would require the handling of about 245,000 tons of coal per annum. Dubuque consumes, locally, less than 10,000 tons a year of eastern coal, which

comes mainly from Illinois and western Kentucky! What earthly chance is there that any such tonnage could be handled at the dock?

How much longer are taxpayers, local and national, going to allow themselves to be deceived by the superstition that transportation on inland artificial waterways is economical?

Railway Employment Further Reduced

A further reduction of nearly 29,000 in the number of railway employees between the middle of September and the middle of October was shown by the Interstate Commerce Commission's monthly statement of employment statistics. As of the latter date the total for Class I railroads was 1,225,399. This was a reduction of 15.78 per cent as compared with October last year and of 29 per cent, or 524,460, as compared with October, 1929.

Wage Statistics For September

Class I railways have reported to the Interstate Commerce Commission a total of 1,254,274 employees as of the middle of the month of September. The total compensation was $170,643,428, a reduction of 18.23 per cent as compared with the corresponding month of last year. The number shows a reduction of 33,800 as compared with August and of 231,632, or 15.59 per cent, as compared with September last year.

I. C. C. Reopens Refrigeration Investigation

The Interstate Commerce Commission has re-opened its investigation of refrigeration charges on fruits, vegetables, berries and melons from the South to destinations in eastern and central states, on petition of the Growers' & Shippers' League of Florida, for such further investigation as to the charges from points in Florida, Georgia, South Carolina, North Carolina and Virginia to points in Central Freight Association territory, including the Buffalo-Pittsburgh zone.

Bus and Truck Service Planned by Northern Pacific

The Northern Pacific will shortly inaugurate daily bus and truck service between Miles City, Mont., and Billings, a distance of 146 miles. The highway vehicles will operate in replacement of two rail motor cars now running between Glendive, Mont., and Billings, and will handle passengers, mail, express and l.c.l. freight from station to station. The buses and trucks will be operated by the Northern Pacific Transport Company, a subsidiary of the railway.

Southeastern Shippers' Board

The Southeastern Shippers' Advisory Board held its regular meeting at Montgomery, Ala., on December 11. Taking all reports together, there is expected a decrease of five per cent in the aggregate volume of freight business during the first quarter of 1932 as compared with 1931. On brick, clay, etc., there is expected a decrease of 10 per cent; fertilizer, 25 per cent; grain, etc., 10 per cent; citrus fruit, 12 per cent; sugar, 10 per cent and considerable decreases in pulp, paper and naval stores. Reports indicate a probable increase of five per cent in cotton and textiles; 15 per cent in cotton seed and products; and five per cent in petroleum and products. Predicted changes in other commodities are small.

Pullman Exhibits in City Stations

A Pullman accommodation exhibit, consisting of a double bedroom, a single occupancy section and a four-position adjustable seat section, was opened by the Pullman Company at the Union station, Chicago, on December 9; and there are similar exhibits in the Pennsylvania and the Grand Central terminals in New York. Others are to be installed in the Union station at Washington, D. C. and the Union station at Buffalo, N. Y. The Company also expects to conduct a tour to other large railway termini, showing exhibits of similar character.

Working Wives to Get Six Months' Leave on Northern Pacific

Northern Pacific married women, whose husbands are employed, will be given a six months' leave of absence beginning January 1, and single-women employees who marry after that date will be required to resign, in accordance with a plan to provide as much work as possible for persons supporting families. This release of married women from railroad employment follows similar action taken by the Chicago, Milwaukee, St. Paul & Pacific, the Chicago & North Western and the Union Pacific.

Member of Mediation Board Re-Appointed

President Hoover has sent to the Senate the nomination of John Williams for re-appointment as a member of the United States Board of Mediation for a five-year term upon the expiration of his present term at the end of this year. Mr. Williams was originally appointed by President Coolidge in 1927. For eight years prior to that time he had been in charge of personnel for the Pacific Coast Steel Company. He had been president of the Amalgamated Association of Iron, Steel & Tin Workers.

Air Express Rates Reduced

The Railway Express Agency has reduced rates for the transportation of merchandise by airplane, throughout its lines, the reduction in some cases being as high as 50 per cent. The Express Agency handles merchandise over five air transportation lines: The United Air Lines, the Western Air Express, the Northwest Airways, the American Airways and the National Parks Airways. These lines cover over 10,000 miles of route and the tariff shows nearly 100 cities. The new tariff is based on one-half-pound units. A ten-pound package between New York and Chicago, formerly costing $10, now goes for $4.40; New York and San Francisco formerly $26, now $13.80. The maximum weight allowed for a shipment is 200 lb. and the minimum charge is $1 up to 300 miles; $1.25 up to 1500 miles and $1.50 for 1500 miles or over. The Agency provides special delivery where necessary so that the time gained by air movement shall not be lost in moving the goods from arriving planes to the door of the consignee.

New Resort to be Developed in Oregon

The Northern Pacific is completing plans for the development of a scenic resort area overlooking Mt. St. Helens on Spirit Lake as an added attraction of the Pacific Northwest. The railway company and the United States forest service have cooperated with O. W. Taylor of Portland, Oregon, for the development of this spot, midway between Portland and Puget Sound. Hotel accommodations to be located on Spirit Lake will be ready for the entertainment of visitors upon the completion of a highway which will connect with the Pacific highway near Castle Rock.

Wood Preservers Nominate Officers

Ballots have been distributed to members of this association carrying the following nominations for officers for the year beginning at the conclusion of the next convention on January 28, 1932: President, Elmer T. Howson, western editor *Railway Age*, Chicago; first vice-president, R. S. Belcher, manager treating plants, A. T. & S. F., Topeka, Kan.; second vice-president, S. R. Church, consulting engineer, New York; secretary-treasurer, Horace L. Dawson, Washington, D. C.; members executive committee, F. C. Shepherd, consulting engineer, B. & M., Boston, Mass., and B. M. Winegar, Canada Creosoting Company, Montreal, Que.

Shippers Meet at Pocatello

Reports of commodity committees at the meeting of the Central Western Shippers' Advisory Board held at Pocatello, Idaho, on December 8, forecast a decrease in carloading during the first three months of 1932 of 8.9 per cent as compared with the same period of 1931. The largest decreases are expected in shipments of automobiles, trucks and parts, grain, agricultural implements and vehicles other than automobiles, potatoes, hay, straw and alfalfa, and ore and concentrates. Action on a resolution urging Congress to repeal the recapture clause of the Transportation Act was postponed until the next regular meeting.

Examiner Approves Proposed Car-Ferry Service

Examiner John H. Howell of the Interstate Commerce Commission has recommended in a proposed report a finding by the commission that there would not be competition, within the meaning of the Panama canal act, between the Florida East Coast Railway and the proposed car-ferry service of the Florida East Coast Car Ferry Company between New Orleans and Havana. It is apparent, the examiner says, that while the East Coast has an appearance of power to compete for traffic from a large section of the country, it has not an actual power for it is evident that other routes, especially the new non-break-bulk route

through New Orleans, can take from it most of its traffic from competitive territories through rate reductions which it, a terminal line extending no further north than Jacksonville, would be powerless to meet.

Federal Road Work

Federal-aid road work progressed more rapidly in the fiscal year ending June 30, 1931, than in any preceding year, says Thomas H. MacDonald, chief of the Bureau of Public Roads, in the annual report of the bureau submitted to the Secretary of Agriculture. During the year 11,033 miles were completed, as compared with 8,682 miles the preceding year. This includes 7,939 miles of road improved for the first time with federal aid, 3,082 miles previously improved but now raised to a higher type, and 12 miles of reconstructed road. Actual payments to the states amounted to $133,340,000. At the close of the fiscal year the projects under construction totaled 16,480 miles as compared with the 9,916 miles in progress at the end of the preceding year.

Kentucky Railroad Employees Seek to Regulate Motor Vehicles

Co-ordinated action by railroad employees in promoting legislation against the "unjust, unreasonable and discriminatory operation of unregulated motor coaches and trucks in the State of Kentucky, against the well-regulated railroads", was urged in a meeting of the recently-organized Kentucky Railroad Employees' and Citizens' League at Louisville, Ky. on December 2. Following a series of speeches in which problems of the railroads were discussed, petitions were circulated for signatures. The petitions are to be sent to Congress and the state legislature urging passage of Federal and State laws, which will prevent unjust discrimination of motor coaches and trucks against the railroads.

Smash-Board Signal Not Sufficient

W. P. Borland, director of the Bureau of Safety, has reported to the Interstate Commerce Commission on the derailment of a fast freight train on the Atlantic Coast Line at Buffalo Bluff, Fla. on October 11, last, in which the train ran into an open draw and the engine fell to the river below, in spite of the presence of cautionary and stop signals and a smash-board signal, and notwithstanding the fact that the engineman was awake and apparently attentive to his duties.

The accident occurred at 2:57 a.m. and the train was a northbound freight of 31 cars. The engineman had observed the signals, had reduced speed from about 35 m.p.h. to about 15 or 20 m.p.h., and apparently had heeded the fireman and a brakeman when they called the signals; yet the speed was not properly reduced and the fireman and the brakeman on the engine jumped off and saved themselves. The engineman remained at his post and was the only victim of the accident. An inquest was held, following an autopsy on the engineman's body, and the verdict was to the effect that the engineman had died from heart failure before the engine had fallen into the river. The engineman was 65 years old and had entered the service of the Atlantic Coast Line at the age of 47 as engineman. He had been on duty less than three hours. Nothing is said about his health or his record prior to the date of the accident.

Airplane Travel for Ten Months

The total number of passengers carried on American-operated air lines during the first 10 months of 1931 was greater than the number carried during the entire year of 1930. The total for 1930 announced by the Aeronautics Branch of the Department of Commerce was 417,505. By the end of October, 1931, 428,465 passengers had been carried, and this did not include traffic on American-operated foreign lines since July 1, as these figures have not yet become available. The number of passengers carried by scheduled air lines operating in continental United States in October, according to reports from 35 out of 40 companies, was 47,665; miles flown by the scheduled air lines, 4,183,793; express carried, 66,672 lb. and passenger miles flown 10,587,389.

Great Western to Abolish City Ticket Offices

The Chicago Great Western, effective January 1, will abolish all of its city ticket offices; Minneapolis, Minn., St. Paul., Des Moines, Iowa, and Kansas City, Mo., and will withdraw from the consolidated ticket offices in Chicago and Omaha. The discontinuance of the ticket offices is based on the conviction that they have outlived their usefulness and are relics of an extravagant era in passenger service which present-day economical conditions do not warrant. According to the Great Western, three times as many tickets are sold at passenger stations as at these offices. Under the new arrangement the railroad will continue to maintain traffic offices in these cities and a prospective traveler may obtain passenger information or delivery of tickets from these offices.

Pacific Northwest Shippers' Board

At a meeting of the officers of the Oregon State Grange at Portland on December 10, in conjunction with the sixth annual meeting of the Pacific Northwest Shippers' Advisory Board on the following day, a resolution was adopted requesting the railroads in the Northwest to allow combined loading of pool-car shipments of various horticultural products, or their by-products, on the rate basis that applies to carload lots of each commodity. Under present rates the cars of mixed products take the freight rate applying to the highest rated product included in the shipment.

During the meeting of the advisory board, commodity committee chairmen estimated a decrease in the car requirements for the first quarter of 1932, as compared with the last quarter of 1931. Increases are anticipated in the movement of cattle, sheep and fresh vegetables, while lumber products will be about 10 per cent lower during the first quarter of 1932, as compared with the corresponding period of 1931.

All officers were re-elected for the ensuing year including: President, J. A. Swalwell, Seattle, Wash.; vice-president, Frank H. Lamb, Hoquiam; executive secretary, Paul A. Scherer, Medford, Ore.; secretary, H. J. Arnett, Seattle; and assistant secretary, E. L. Rowe, Seattle.

Upper Mississippi Improvement Cost Estimated at $124,000,000

The cost of a system of locks and dams in the upper Mississippi river to provide a depth of nine feet and adequate width is estimated at $124,000,000 in a report submitted to Congress by Major General Lytle Brown, chief of engineers of the Army, recommending the improvement. The report said that maintenance of the channel by dredging alone was impracticable. The chief of engineers has also submitted many other reports to Congress as to river improvements, including one recommending that $22,500,000 be authorized for low-dam construction for the section of the Tennessee river between Muscle Shoals and Chattanooga, including $5,000,000 already authorized. He did not, however, recommend that work on other sections of the river, as part of the project for a nine-foot depth, be started at this time.

A Correction

The figures given in the second paragraph of the address of Chairman Brainerd of the Interstate Commerce Commission before the National Association of Railroad and Utilities Commissioners, which appeared on page 680 of the October 31 issue of *Railway Age* were incorrect. This paragraph should read as follows:

"The commercial freight traffic in the United States in 1928 amounted to 615 billion ton-miles, and in 1929 to 650 billion ton-miles. The percentage of the total for 1929 produced by the various transportation agencies is as follows: Steam railroads, including electrified operation, 75.8; electric railroads, motor trucks, and airplanes, 3; pipe lines, 4.9; and water-borne traffic, including Great Lakes and inland waterways, 16.3. These figures are the latest obtainable, but we know that the trend in motor and airway transport has been steadily upward."

Rivers and Harbors Congress

The National Rivers and Harbors Congress at its 27th annual convention in Washington on December 9 adopted resolutions urging the completion of all authorized river and harbor projects within the shortest possible time and urging Congress to provide by appropriations, or if necessary by a bond issue, funds for the more intensive prosecution of the various projects by the Secretary of War and the Chief of Engineers. Congress was also urged to adopt standardization of channel depths in rivers and harbors as a policy and the Army engineers were urged to complete the studies necessary to bring about the establishment of "trunk lines"

for ocean-going vessels as well as for barges along the shortest practicable routes. The convention expressed its unalterable opposition to "any regulation or curtailment of the free usage of our inland water highways," stating that "they are open highways of commerce for the benefit of the public and should be kept forever free."

The program included a symposium of addresses on various forms of transportation but it was stated that it had been impossible to obtain a railroad speaker. Representative Frank R. Reid, of Illinois, was elected president of the association for the ensuing year, after a lively parliamentary fight, succeeding former Senator Joseph E. Ransdell, who was elected honorary president for life.

P. R. R. Container Transfer Station at Harrisburg, Pa.

The growth of container car business on the Pennsylvania has made necessary the construction at Harrisburg, Pa., an important transfer point, of a new container transfer station with track space for handling 75 container cars at once

At that point solid container cars are made up for northern and western destinations from containers received from freight stations in Philadelphia, Camden, N. J., and Baltimore, Md. Containers are loaded without reference to destination and forwarded to Harrisburg where they are classified and reloaded on cars for their respective destinations. Transfer operations are effected at the rate of one container each minute and a half and the freight, housed in steel compartments, reaches its destination in 24 to 72 hours quicker than was possible under the former transportation and transfer arrangements of handling this freight in box cars. The containers weigh approximately 3,000 pounds and have a load capacity of 12,000 pounds.

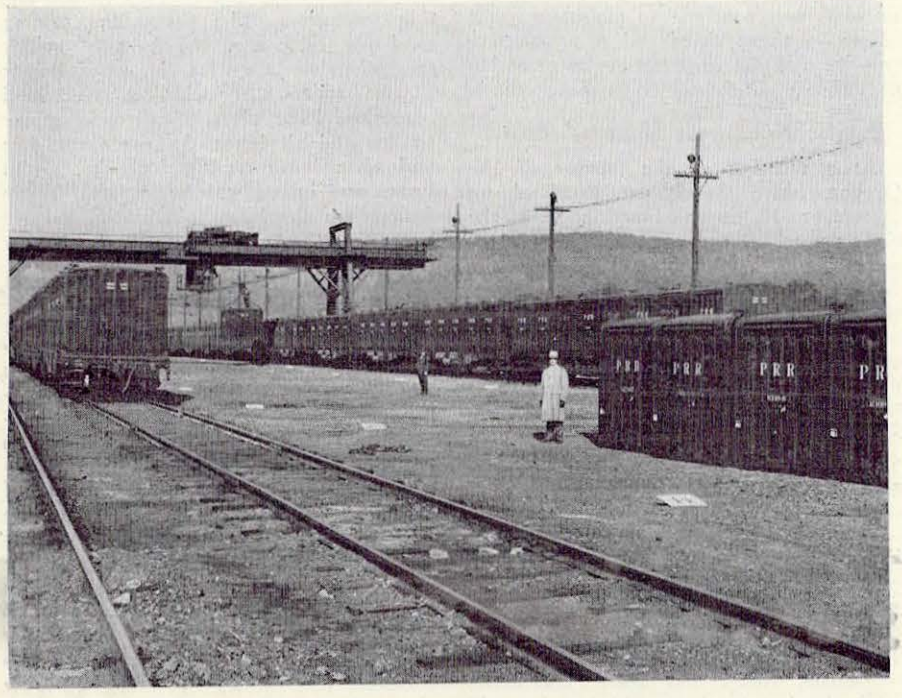
Two large cranes are employed in transferring containers at the Harrisburg station. A large part of the operation at the transfer is performed at night in order that connections with scheduled "blue ribbon" freight trains to various parts of the country may be made.

Rates on Envelopes to be Investigated

The Interstate Commerce Commission has ordered an investigation into the rates on envelopes within and between Official, Southern and Western classification territories for the purpose of reviewing the rates generally throughout the country. In a complaint case it was found that the rates charged from Kansas City to Chicago, Indianapolis, and other destinations in Official territory were unreasonable and unduly prejudicial in comparison with rates charged from manufacturing points in that territory to the same destinations and 50 per cent of the first class rates was fixed as a reasonable basis. The rates from Kansas City were higher than this basis, whereas the rates from the Official territory manufacturing points were materially lower, approximating 35 per cent of first class. The decision gave the eastern lines an opportunity to increase the rates they charge on envelopes but they have refused to take advantage of the opportunity, the commission's notice said, thus forcing the western lines to reduce their rates from Kansas City below the basis found reasonable by the commission.

Northern Pacific Establishes District Accounting Offices

The Northern Pacific has changed its disbursement organization from the division to the district form of line accounting. Heretofore this road has had 16 disbursement accounting units—11 operating, two shop, one engineering, one telegraph and one dining car—each under a division accountant reporting to both the auditor of disbursements and the local operating officer. Beginning January 1, 14 of these units—the telegraph and dining car offices remaining unchanged—will be centralized into three district offices located at St. Paul, Minn., Livingston, Mont. and Tacoma, Wash., under district accountants reporting to the auditor of disbursements. With the greater mass production possible under the district plan, it is expected that more intensive use of machines and the installation of new types of machines not feasible in small offices will result in still further reduction of expense. The installation of office machinery has contributed largely to a substantial reduction in Northern Pacific disbursement accounting expense during the past 10 years.



Container Transfer Station of the Pennsylvania at Harrisburg, Pa.

Strathcona Fellowships at Yale

Applications are now being received for the five Strathcona Memorial Fellowships in Transportation, which are awarded annually at the Graduate School, Yale University. These Fellowships of $1,200 each, as the announcement points out, are offered "for advanced work in transportation, with special reference to the construction, equipment, and operation of railroads, and other engineering problems connected with the efficient transportation of passengers and freight, as well as the financial and legislative questions involved. Transportation by water, highways, or airways, and the appropriate apparatus involved, and also other general aspects of the broad field of transportation, embracing its legal and economic phases, will be included in the lists of subjects which the Fellows may select for investigation and study. The holder of a Fellowship must be a man who has obtained his first degree from an institution of high standing. The primary purpose of the Fellowship is to promote advanced work, especially research; but it is possible to combine such work with the attainment of an advanced degree. In making the award, preference is shown, in accordance with the will of Lord Strathcona, to such persons or to the sons of such persons as have been, for at least two years, connected in some manner with the railways of the Northwest."

Applications which must be filed before March 1, 1932, should be addressed to the Dean of the Graduate School, Yale University, New Haven, Conn.

A.R.E.A. Nominates Officers

The Nominating committee of the American Railway Engineering Association has nominated the following candidates for office for the year beginning next March: President, J. V. Neubert, chief engineer maintenance of way, N. Y. C.; second vice-president, J. E. Armstrong, assistant chief engineer, C. P. R.; secretary, E. H. Fritch; treasurer, A. F. Blaess, chief engineer, I. C. In addition, W. P. Wiltsee, chief engineer, N. & W. is automatically elevated from second vice-president to first vice-president.

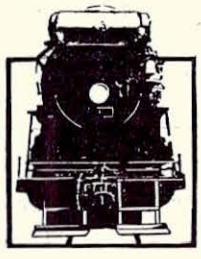
Directors (three to be elected): H. Austill, bridge engineer, M. & O.; E. M. Hastings, chief engineer, R. F. & P.; J. C.

Continued on Next Left Hand Page

AN OLD ROAD ENGINE

CAN NOT BECOME A

MODERN SWITCHER



● The engineering advance that made the Super-Power Steam Locomotive is not confined to road engines; it applies equally to switchers.

Obsolete road engines lose money in the yards as well as on the road.

One road placed in service a number of modern switch engines, the design of which incorporated high steam pressure, limited cut-off, large grate area, feed water heater, and tender booster.

These locomotives not only increased the capacity of the existing yards but did it so economically that the operating savings will pay for the engines in five years.

Modern Switch Engines Afford Remarkable Means Of Reducing Operating Costs.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, Incorporated

LIMA OHIO

Irwin, valuation engineer, B. & A.; F. R Layng, chief engineer, B. & L. E.; E. R. Lewis, principal assistant engineer, M. C.; A. N. Reece, chief engineer, K. C. S.; L. S. Rose, general manager, P. & E.; J. R. Watt, general roadmaster, L. & N.; A. R. Wilson, engineer bridges and buildings, Penna.

Members of Nominating committee (five to be elected): W. C. Barrett, trainmaster, L. V.; C. B. Bronson, assistant inspecting engineer, N. Y. C.; E. L. Crugar, chief engineer, Wabash; W. T. Dorrance, assistant to chief engineer, N. Y., N. H. & H.; M. Hirschthal, concrete engineer, D. L. & W.; W. L. Morse, special assistant engineer, N. Y. C.; C. P. Richardson, engineer of track elevation, C. R. I. & P.; J. W. Orrock, engineer of buildings, C. P. R.; A. L. Sparks, architect, M-K-T.; R. C. Young, chief engineer, L. S. & I.

Broad Street Station Completes Fifty Years

The Broad Street Station, passenger terminal of the Pennsylvania in Philadelphia, was opened for business on December 5, 1881, and the company is now celebrating its Golden Anniversary. This station, soon to be replaced by the new station west of the Schuylkill River, has been used, probably, by five hundred million people. When built, it was the largest and most imposing railroad terminal in America, and has been one of the noted railroad structures of the world. The general offices of the company, in the upper floors, which last year were moved to the new "Board Street Station Building" adjacent to the old structure, had occupied those rooms for 36 years.

The station at first had eight tracks for trains with accompanying platforms, covered by two train sheds. The station was enlarged in 1889 and in 1892 and the great arched train shed, spanning 16 tracks, 100 ft. high and 600 ft. long, was completed in 1894. This immense arch was destroyed by fire in 1923, together with great stores of material, records, etc. in vaults beneath the tracks.

The great historical and allegorical picture, in relief, which is the feature of the west wall of the main waiting room, the work of Karl Bitter, famous Austrian sculptor, is to be set up in the main waiting room at the new station at Thirtieth street.

Farm Bureau Committee Favors Repeal of 15-A

A motion requesting the American Farm Bureau Federation to seek legislation repealing the recapture clause of Section 15-A and to favor legislation which will enable railroads to set up surpluses, was passed by a National transportation conference held under the auspices of the American Farm Bureau Federation at Chicago on December 5. The conference, which was held in conjunction with the thirteenth annual meeting of the Federation, also approved a motion favoring legislation which will place the earnings of railroad-owned refrigerator car lines under the jurisdiction of the interstate Commerce Commission. This action was taken during a discussion of the following subjects which comprised the program of the conference: The Effect on Agriculture of Section 15-A of the Esch-Cummins Act; Refrigeration Charges on Perishable Freight; Regulation of Motor Trucks and Coaches; Inland Waterways and Service; Live Stock versus Fresh Meat Rates; Railway Consolidation; and the General Failure of the Hoch-Smith Resolution to Give Help to Agriculture.

During the discussion of motor trucks, several of the members opposed the regulation of truck rates, fearing that the approval of higher truck rates might be an indirect admission that rail rates are not too high. Senator Drake of Indiana moved that the Federation be requested to work for the passage of laws to place motor trucks and coaches under the jurisdiction of the Interstate Commerce Commission and thus force motor vehicle operators to pay taxes that are equal to the cost of constructing and maintaining railroads. The motion was lost.

Inland waterways were favored as a means of providing a competitive form of transportation that exercises a controling influence over the railroads. A motion passed requested the Bureau to study the effects of the Dennison Act and to determine the practicability of applying rail-water-rail rates from central western points by way of the Mississippi river and the ocean to points on the Atlantic and Pacific seaboards.

N. Y. Port Authority Counsel Outlines Belt Line Plans

The construction of a freight tunnel under upper New York bay from Bay Ridge, Brooklyn, to Greenville, N. J., remains one of the "major purposes" of the Port of New York Authority, according to Paul Windels, associate counsel, in a speech before the Brooklyn Board of Real Estate Brokers on December 1.

"The comprehensive plan for the coordination and development of freight facilities in the Port of New York," he said, "includes, among other features, the establishment of various belt lines, encircling and serving all parts of the port district, the consolidation of carfloat and lighterage operations, and the unification of terminal facilities.

"One feature, of direct and immediate interest to the easterly side of the port, is the establishment of belt line No. 1, which, when completed, will provide a direct all-rail loop connecting the easterly and westerly sides of the port, making possible the more efficient distribution of local Long Island freight and the better handling of interchange freight between New England and the South and West.

"The line of the loop begins at the railroad classification yards on the New Jersey side, west of the Palisades, and runs to Greenville, thence through a new freight tunnel under the upper bay to Bay Ridge, where it will connect with the present Bay Ridge division of the Long Island, through Fresh Pond Junction to the New York Connecting Railroad and finally over Heil Gate bridge to the terminals of the New York Central and New York, New Haven & Hartford in the Bronx.

"The vital link in this chain of facilities is the proposed freight tunnel connecting New Jersey and Brooklyn under the Upper Bay. So important does it seem to the commissioners and staff of the Port Authority that we refer to it constantly as the keystone of the arch in the entire belt-line program of the Port Authority."

Difficulties involved in carrying the project to completion, Mr. Windels added, include obtaining for the bankers written commitments from prospective users of the tunnel, the railroad companies, which will assure a rental income sufficient to justify the required capital investment, and in obtaining satisfactory leases from the carriers.

National Inland Shippers' Association

The National Inland Shippers' Association was formed at a meeting of "shippers not located on any waterway" at a meeting at Springfield, Ill., on December 8, with E. L. Henninger, manager of the traffic department of the Bloomington (Ill.) Association of Commerce, as general chairman pending the adoption of a constitution and by-laws and election of officers. The meeting was held in connection with a regular meeting of the Transportation Club of Springfield. The purposes of the new organization include the sponsoring of indorsement of such legislation as will place common carrier barge lines under the regulation of the Interstate Commerce Commission. The resolution, prepared by a committee consisting of E. L. Henninger, M. L. Pieper, traffic commissioner of the Springfield Chamber of Commerce, E. W. Larrick, manager of the transportation department of the Decatur Association of Commerce, and James M. Graham, corporation counsel of the Baltimore & Ohio and the Illinois Terminal Railroad, is in part as follows:

Whereas, the railways of the United States are subjected to unregulated, unjust and unfair competition to such an extent as to crush them if not remedied, the most damaging of these competitors being the inland barge lines and the truck and bus lines, both of which are favored by law to an extent which amounts to subsidizing them while the railroads are tied neck and heels by legislation; and

Whereas, the rates which the railroad companies may charge are fixed by law while their competitors are free to fix their own rates, and may cut under railroad rates when necessary to get the business, while raising their rates as high as the traffic will bear in the absence of competition; and

Whereas, railroad employees have an eight-hour day fixed by law while there is no limit to the number of hours per day the employees of their competitors may serve; and

Whereas, these and other serious discriminations against the railroad are so injuriously affecting them that they are rapidly losing their business to such unregulated, unjust and unfair competition, and have been compelled to discharge tens of thousands of their employees, and to forego the making of necessary betterments in recent years; be it

Resolved, that we condemn and vigorously protest against any system by which the people of the United States are, or shall be, taxed to support barge lines and truck and bus lines to the detriment, if not to the destruction, of the railroads of the country;

And Be It Further Resolved, that we urgently insist that said inland barge lines and truck

Continued on Next Left Hand Page

Through 274 Miles of Rugged Mountains

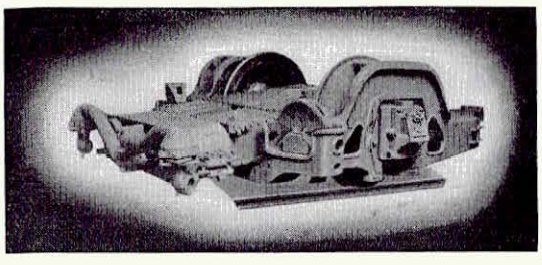
THE EMPIRE BUILDER USES THE BOOSTER

BETWEEN Whitefish, Montana and Spokane, Washington, The Great Northern uses Booster-equipped locomotives to haul their premier passenger train, "The Empire Builder" through 274 miles of rugged mountain country.

On steep grades, the speed of this de Luxe train is maintained by cutting-in the Booster with its thousands of pounds of extra tractive effort. Smooth starts are made without annoying jerks even when the train must be stopped on a grade. Rapid acceleration also obtained is an aid in maintaining schedules.

In all classes of passenger service whether in the mountains or in crossing the plains, the Booster-equipped locomotive adds to passenger comforts and wins the travellers' goodwill. This is gained without adding to operating costs, for Boosters capitalize idle weight and spare steam to bring economy of operation and maintenance to the railroads that use them.

THE LOCOMOTIVE BOOSTER



FRANKLIN
RAILWAY SUPPLY CO., INC.
NEW YORK CHICAGO SAN FRANCISCO ST. LOUIS MONTREAL

THE FRANKLIN SLEEVE JOINT
Does not become rigid under pressures.

and bus lines be placed under the control of the Interstate Commerce Commission, and under the control, respectively, of the various state commerce commissions, for the purpose of fixing equitable rates, establishing a uniform and proper method of bookkeeping, and fixing other fair, general regulations applicable to common carriers to the effect that all engaged in the transportation of persons and property for hire may carry on under just laws and enjoy a square deal.

The Springfield meeting was called following a meeting in Bloomington, on December 4, which considered the effect of inland waterway transportation on the business of concerns not located on waterways.

Alaska Railroad Reduces Its Deficit

In spite of a slight reduction in revenues the Alaska Railroad in the fiscal year 1931 so reduced its operating expenses as to show a reduction in its deficit from $1,237,120 in 1930 to $589,750, a decrease of $647,370. According to a summary of the general manager's report made public in the annual report of the Secretary of the Interior, the revenue from all sources was $1,147,628, a decrease of 3.28 per cent, while the total expenses were $1,727,784, a decrease of $690,765, or 28.56 per cent. These figures include both railroad and river-boat operations. The operating ratio of the railroad decreased from 209.34 in 1930 to 154.31 in 1931. The reduction in expenses was effected by decreased train mileage, reduction in forces, efforts to improve operating economy and other means, the report says, although it also says that the physical condition of the road, structures, and equipment showed marked improvement at the end of the fiscal year.

During the spring of 1931 all freight and passenger tariffs were reissued. Freight tariffs were compiled so as to give a new rate varying from 35 to 70 per cent higher on different commodities than the old rate, and the passenger rail-line tariff was revised increasing the rate 66 2/3 per cent, to 10 cents a mile. The report expresses the opinion that the increase of passenger rates will adversely affect this source of revenue, particularly the local travel, which has shown a steady decline since its inception. An increase in freight tonnage occurred prior to the freight-rate increases. This was caused by merchants stocking up in advance, with resultant decrease of tonnage in the following months, which effect will continue until the oversupply has been exhausted, it is stated.

Passenger revenue from rail operation for the fiscal year amounted to $191,475, a decrease under the previous year of $8,959, or 4.46 per cent. Freight revenue from rail operation amounted to $688,-440, an increase of $10.687, or 1.57 per cent. Rail operating revenue from all sources was $1,053,455, a decrease of $46,387, or 4.21 per cent.

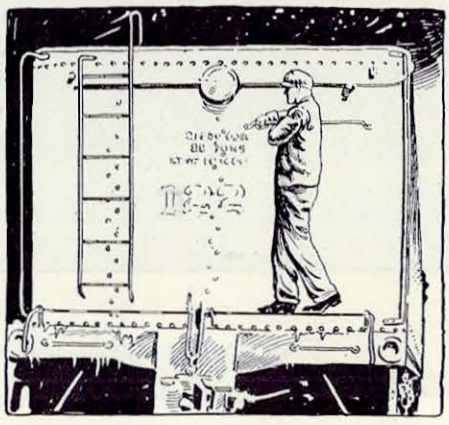
Passenger revenue from river-boat operation amounted to $14,763, an increase of $253.25, or 1.74 per cent. Freight revenue from river-boat operation amounted to $42,126, an increase of $468, or 1.12 per cent. All revenue from river-boat operation amounted to $84,577, an increase of $2,991, or 3.66 per cent.

Rail-line expenses for maintenance and operation amounted to $1,632,662, a decrease of $688,547, or 29.66 per cent. Including replacements, expenses decreased $688,547, or 29.66 per cent.

Deficit for rail operation was $579,206, a decrease of $642,160, or 52.57 per cent. The river boats were operated at a loss of $10,544 as against a loss of $15,753 in 1930.

Look Out for Winter Hazards

Circular No. 316, issued by the Committee on Education, A. R. A., to serve as a guide for railroad safety committees in January, is made up of notes on the hazards peculiar to the work of employees in very cold weather. The records of



Bad Practice in Winter

four years show that employees killed in train service accidents in January, February and March numbered 712, while in April, May and June, the total was 636. Looking only at two causes, the two most serious—*a* "being struck or run over by trains," and *b* "while getting on or off"—the difference is still greater; the train mileage being about the same, the reduction in fatal accidents under *a* was 28.3 per cent as compared with the first (colder) quarter; under *b* it was 21 per cent.

Taking Water in Freezing Weather

One of the risks specially needing to be guarded against is that encountered by the fireman when he mounts the tender to take water. A colored poster has been issued illustrating this danger, a photographic copy of which, reduced, is here shown. A risky practice sometimes indulged in is shown in another illustration, an actual scene from life, where a brakeman walks across the rear end of the tender on the lift-lever rod.

Other hazards illustrated in the circular by pictures are: Too much snow heaped up around a switch stand; icicles neglected where hanging over the entrance to a building, and ice-covered ladders on the sides of freight cars.

River and Harbor Work

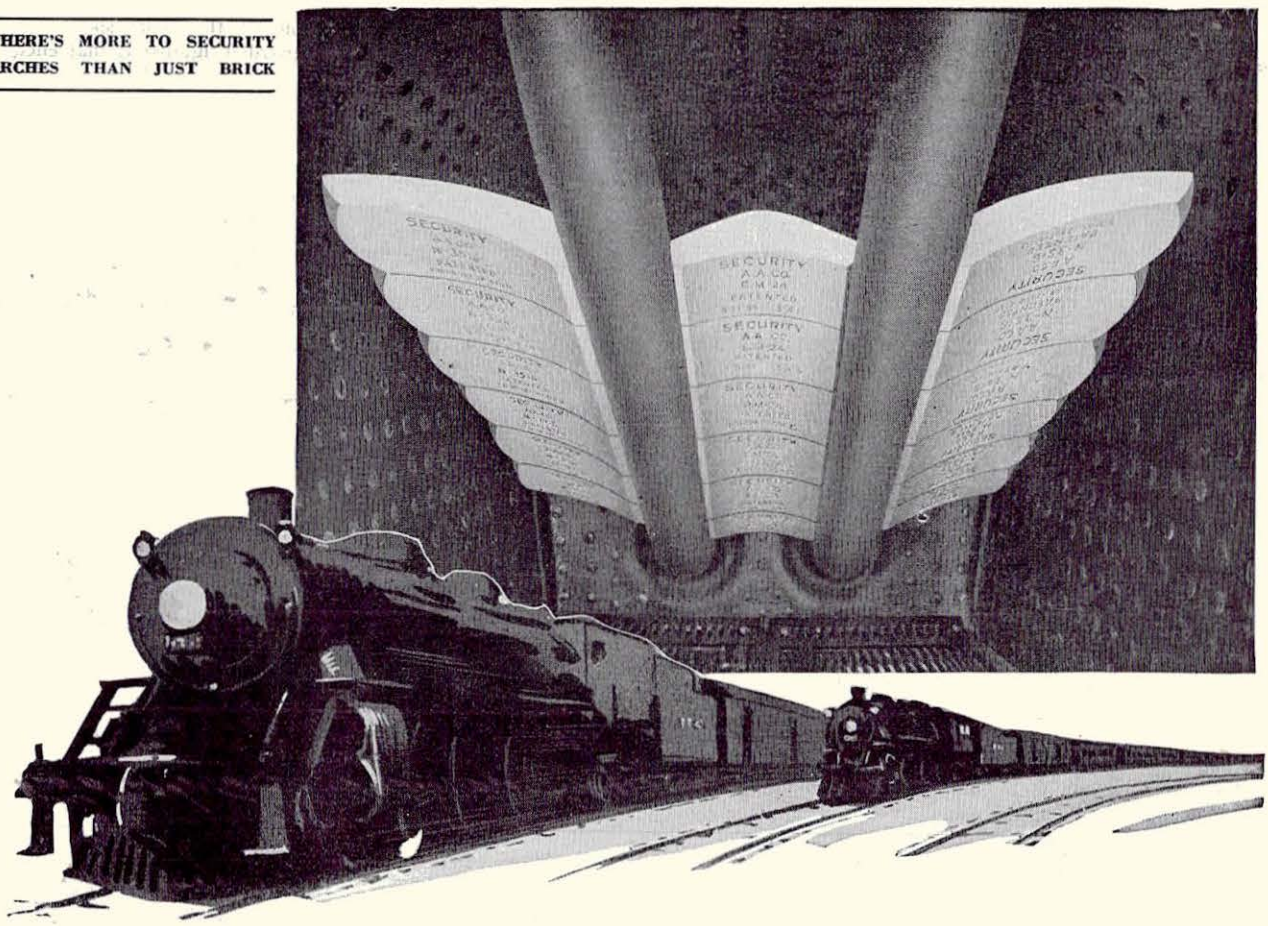
The amount expended by the federal government on the maintenance and improvement of river and harbor works for the fiscal year ended June 30, 1931, was $72,309,817, according to the annual report of the Chief of Engineers. Other expenditures, such as for flood control and surveys, brought the total expenditure up to $119,140,872. The number of projects in force is 956, exclusive of flood control, and it is estimated that the average force employed, including contractors' employees was 40,000. Active operations were in progress on 388 projects. The amount required for the completion of authorized river and harbor projects, within the limits of authorized appropriations, is estimated at $261,000,000. Water-borne commerce for the calendar year 1930 amounted to 520,280,000 tons, a decrease of 63,520,000 tons under that of 1929.

Improvement of the Missouri river to obtain a navigation channel 6 ft. deep to Kansas City has been vigorously prosecuted and operations are to be pressed on the improvement to Sioux City. On the Illinois river work is actively in progress on locks and other works included in the state project for the Illinois waterway. On the upper Mississippi, the provision of a 9-ft. channel to Minneapolis has been initiated in the commencement of works at Rock Island rapids. Despite the extraordinary low water of the Fall of 1930, the report states, the 9-ft. channel in the recently-completed slack-water improvement of the Ohio river was maintained and navigation was kept moving throughout the Mississippi river. Work is progressing on the inland waterway along the Atlantic coast and on the intercoastal waterway along the Gulf coast. Reports on 133 preliminary examinations and surveys have either been transmitted to Congress or made ready for such transmission, and 10 reviews of previous reports have been completed.

Total expenditures on the Mississippi river system, exclusive of flood control, are estimated at $354,760,502 for new work and $54,725,882 for maintenance. The report on the Ohio river repeats the statement made in previous reports that "now that all the locks and dams are practically completed and in operation, permitting continuous operation... throughout the entire length of river..., a large increase in tonnage of longer hauls is anticipated" and this is illustrated

Continued on Next Left Hand Page

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK



Design Is The First Step
In American Arch Company Service

WHEN a new locomotive is designed, the builder looks to American Arch Company to lay out the Arch tubes and design the Arch.

With 21 years of experience in locomotive combustion behind it, American Arch Company is the recognized authority on locomotive Arches.

American Arch Company engineers and service men have concentrated their attention on locomotive combustion and its relation to the Arch.

As locomotive improvements such as stokers, syphons, and increased grate areas have developed, the Arch has kept pace due to the engineering activity of the American Arch Company.

But design is only one of the many factors in a satisfactory locomotive Arch and every other phase of Arch brick service is covered as completely by the American Arch Company as is design.

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists

by the shipments from steel mills to the lower Ohio and Mississippi, which have increased from 160,000 tons in 1926 to 336,750 tons in 1930. However, the report shows that although the freight traffic on the Ohio river for the calendar year 1930 was 22,337,434 tons, an increase of 1.6 per cent over that of 1929, the ton-mileage decreased 2.5 per cent to 1,473,926,729, and the average haul decreased from 68.7 miles to 66 miles. It is stated that most of the increase in tonnage over that of 1929 was due to larger movements of stone, sand, and gravel, on which the haul is short, and that there were but slight variations in the movement of other commodities, except petroleum products, which decreased. Coal still contributes 42 per cent of the total traffic. It is estimated that $1,600,000 can be profitably expended in the fiscal year 1933 for new work on the Ohio, in addition to available funds.

Additional Interoceanic Canal Capacity Not Now Needed

Reports finding that the present and prospective traffic do not require that any steps be taken now to provide further capacity for the Panama canal and that the advantages of a second interoceanic

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 171 Steam Railways, Including 17 Switching and Terminal Companies.

FOR THE MONTH OF OCTOBER, 1931 AND 1930

Item	United States		Eastern District		Southern District		Western District	
	1931	1930	1931	1930	1931	1930	1931	1930
Average number of miles operated	242,837.62	242,657.10	60,233.34	60,332.74	46,147.38	46,114.26	136,456.90	136,210.10
Revenues:								
Freight	$289,193,148	$385,653,157	$119,749,975	$156,364,808	$52,791,418	$66,273,197	$116,651,755	$163,015,152
Passenger	38,202,165	52,367,993	22,860,740	30,387,970	4,116,443	5,917,345	11,224,982	16,062,678
Mail	8,664,490	9,159,936	3,435,124	3,538,829	1,444,376	1,540,596	3,784,990	4,080,511
Express	6,994,186	10,190,575	3,576,120	4,650,083	887,024	1,396,423	2,531,042	4,144,069
All other transportation	11,958,254	15,051,074	6,940,809	8,750,009	876,483	1,067,008	4,140,962	5,234,057
Incidental	7,554,521	10,175,583	4,049,459	5,363,923	922,657	1,153,268	2,582,405	3,658,392
Joint facility—Cr.	928,139	1,207,530	315,920	395,475	152,204	208,487	460,015	603,568
Joint facility—Dr.	289,256	279,035	70,217	77,836	26,367	30,671	192,672	170,528
Railway operating revenues	363,205,647	483,526,813	160,857,930	209,373,261	61,164,238	77,525,653	141,183,479	196,627,899
Expenses:								
Maintenance of way and structures	42,042,939	58,032,565	17,736,421	26,228,073	8,682,334	9,694,215	15,624,184	22,110,277
Maintenance of equipment	63,724,447	79,911,121	29,409,992	37,576,230	11,993,956	13,942,921	22,320,499	28,391,970
Traffic	9,588,855	10,060,115	3,913,875	3,929,949	1,771,772	1,880,788	3,903,208	4,249,378
Transportation	128,422,913	159,159,149	60,863,187	73,787,697	20,426,142	24,934,069	47,133,584	60,437,383
Miscellaneous operations	3,160,560	4,226,167	1,553,043	1,963,551	308,169	405,816	1,299,348	1,856,800
General	14,881,982	15,883,438	6,539,085	6,911,730	2,556,661	2,734,482	5,786,236	6,237,226
Transportation for investment—Cr.	574,778	936,284	170,453	205,848	74,529	91,408	329,796	639,028
Railway operating expenses	261,246,918	326,336,271	119,845,150	150,191,382	45,664,505	53,500,883	95,737,263	122,644,006
Net revenue from railway operations	101,958,729	157,190,542	41,012,780	59,181,879	15,499,733	24,024,770	45,446,216	73,983,893
Railway tax accruals	26,443,577	32,229,445	11,792,957	13,522,793	4,358,701	5,533,702	10,291,919	13,172,950
Uncollectible ry. revenues	66,748	64,564	22,306	26,263	11,525	13,969	32,917	24,332
Railway operating income	75,448,404	124,896,533	29,197,517	45,632,823	11,129,507	18,477,099	35,121,380	60,786,611
Equipment rents—Dr. balance	8,403,377	9,757,302	4,212,275	4,278,303	d 124,610	d 297,670	4,315,712	5,776,669
Joint facility rent—Dr. balance	3,024,953	2,752,991	1,502,675	1,574,100	291,822	267,460	1,230,457	911,431
Net railway operating income	64,020,074	112,386,240	23,482,568	39,780,420	10,962,295	18,507,309	29,575,211	54,098,511
Ratio of expenses to revenues (per cent)	71.93	67.49	74.50	71.73	74.66	69.01	67.81	62.37

FOR TEN MONTHS ENDED WITH OCTOBER, 1931 AND 1930

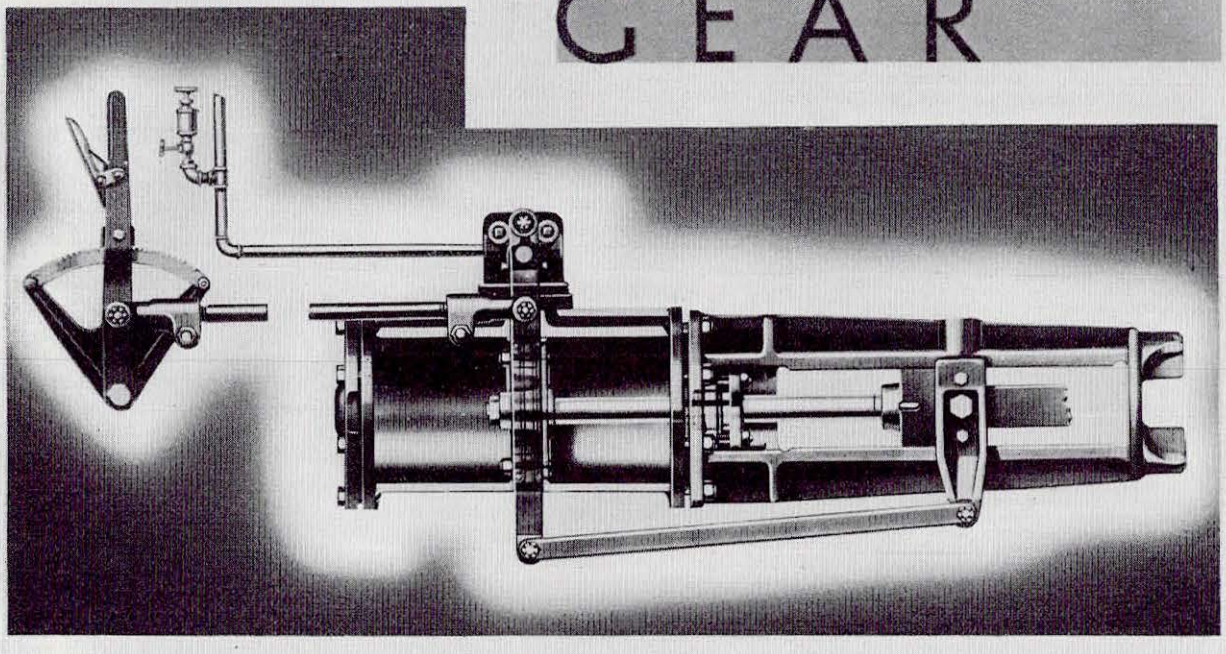
Average number of miles operated	242,870.42	242,668.96	60,278.51	60,348.17	46,134.97	46,133.50	136,456.94	136,187.29
Revenues:								
Freight	$2,803,528,853	$3,493,553,748	$1,179,211,239	$1,483,410,687	$530,538,793	$636,078,683	$1,093,778,821	$1,374,064,378
Passenger	474,577,319	625,485,159	272,223,113	345,359,204	57,546,981	80,972,112	144,807,225	199,153,843
Mail	86,488,948	91,149,387	33,492,706	34,857,053	14,554,256	15,251,718	38,441,986	41,040,616
Express	71,556,889	97,251,696	31,815,718	43,795,260	11,345,426	14,095,141	28,395,745	39,361,295
All other transportation	121,709,516	151,207,129	70,615,989	88,179,726	9,103,112	11,010,062	41,990,415	52,017,341
Incidental	77,841,718	100,176,913	41,173,900	51,760,706	10,637,287	13,050,067	26,030,531	35,366,140
Joint facility—Cr.	9,625,180	11,145,524	3,092,822	3,767,116	1,714,209	1,977,924	4,818,149	5,400,484
Joint facility—Dr.	2,816,488	3,109,655	749,365	929,284	254,990	338,894	1,812,133	1,841,477
Railway operating revenues	3,642,511,935	4,566,859,901	1,630,876,122	2,050,200,468	635,185,074	772,096,813	1,376,450,739	1,744,562,620
Expenses:								
Maintenance of way and structures	470,724,273	620,090,685	198,644,062	262,181,647	89,494,463	107,852,746	182,585,748	250,056,292
Maintenance of equipment	704,590,702	870,517,699	326,583,395	403,795,904	127,791,459	155,697,641	250,215,848	311,024,154
Traffic	99,167,185	108,194,621	38,699,883	41,482,617	18,278,885	19,990,177	42,188,417	46,721,827
Transportation	1,328,168,560	1,584,464,385	626,912,554	745,098,206	217,087,139	253,171,547	484,168,867	586,194,632
Miscellaneous operations	35,591,841	44,848,015	17,290,610	21,020,568	4,056,118	5,213,445	14,245,113	18,614,002
General	153,776,989	162,017,416	67,190,441	70,977,769	26,846,194	27,453,449	59,740,354	63,586,198
Transportation for investment—Cr.	6,229,740	10,823,676	1,221,984	2,162,944	740,994	953,627	4,266,762	7,707,105
Railway operating expenses	2,785,789,810	3,379,309,145	1,274,098,961	1,542,393,767	482,813,264	568,425,378	1,028,877,585	1,268,490,000
Net revenue from railway operations	856,722,125	1,187,550,756	356,777,161	507,806,701	152,371,810	203,671,435	347,573,154	476,072,620
Railway tax accruals	272,340,434	307,713,258	111,929,744	127,531,622	50,180,427	56,983,456	110,230,263	123,198,180
Uncollectible ry. revenues	665,760	795,856	236,694	315,325	141,758	139,097	287,308	341,434
Railway operating income	583,715,931	879,041,642	244,610,723	379,959,754	102,049,625	146,548,882	237,055,583	352,533,006
Equipment rents—Dr. balance	85,005,639	82,558,446	42,416,081	41,059,002	4,239,497	477,865	38,350,061	41,021,579
Joint facility rent—Dr. balance	26,403,999	23,195,921	14,511,670	12,117,855	2,775,389	2,323,926	9,116,940	8,754,140
Net railway operating income	472,306,293	773,287,275	187,682,972	326,782,897	95,034,739	143,747,091	189,588,582	302,757,287
Ratio of expenses to revenues (per cent)	76.48	74.00	78.12	75.23	76.01	73.62	74.75	72.71

d Deficit or other reverse items.

Compiled by Bureau of Statistics, Interstate Commerce Commission. Subject to Revision.

Continued on Next Left Hand Page

Alco REVERSE GEAR



SIMPLE
ACCURATE
EASILY MAINTAINED
REASONABLY PRICED

•

AMERICAN LOCOMOTIVE CO.
30 CHURCH STREET NEW YORK, N. Y.

canal do not appear to be sufficient at this time to warrant immediate action for the construction of a canal across Nicaragua, have been transmitted to the Secretary of War and to Congress by Major General Lytle Brown, chief of engineers of the Army, following an investigation ordered by Congress on March 2, 1929.

The report on increasing the capacity of the Panama Canal was made by Colonel Harry Burgess, and that on the Nicaraguan route by Lieut. Col. Dan I. Sultan. A provisional battalion of engineer troops was employed on the work in Nicaragua for a period of nearly two years. Both reports were referred for review to the Interoceanic Canal Board appointed by the President. General Brown summarized the reports as follows:

The Panama Canal in its present condition accommodates the existing demands for interoceanic traffic. The Gatun dam has heretofore afforded sufficient storage of water for the operation of its present system of twin locks. The water supply is now being augmented, as provided in the original plans, by the construction of a dam at Alhajuela which will form the Madden reservoir. When this project is completed the water supply will be more than sufficient for the operation of the present locks, at maximum capacity. An additional set of locks would increase this capacity still further. The expansion of the Panama Canal by building a third set of locks, thereby providing for three-way traffic, is feasible and can be successfully accomplished at an estimated cost of $140,000,000. The additional locks considered would be 125 feet wide and 1,200 feet long in the clear, sufficiant to accommodate the largest vessel reasonably to be expected in interoceanic traffic over the next century. The additional set of locks vided would increase the capacity of the canal with the increased water supply now being promore than 40,000,000 tons a year and would provide a total capacity approaching 110,000,000 tons a year.

The conversion of the Panama Canal into a sea-level canal would involve the expenditure of a billion or more dollars. It could be accomplished in from twenty-five to thirty years without serious interruptions to traffic through the canal; but it would involve certain unavoidable hazards through the necessity of underpinning portions of the lock walls, and of making certain alterations to the gates and anchorages. Because of the difference in tides in the Atlantic and Pacific Oceans, tidal locks would be required for a sea-level canal.

The most practical route for another interoceanic ship canal is across Nicaragua from Greytown on the Atlantic Ocean to Brito on the Pacific Ocean by way of the Deseado and San Juan Rivers and the Great Lake of Nicaragua. A lock canal over this route is practicable and involves no problems that cannot be solved successfully. This canal would be 172.8 miles long with a set of two-way triple flight locks near each coast. The lock chambers would be similar in size to that proposed for the additional Panama Canal locks, 125 feet wide and 1,200 feet long in the clear with a minimum depth over the sills of 42.5 feet. Satisfactory foundations for these locks have been found. The minimum depth of water in the canal would be forty feet while the widths would vary from 300 to 1,000 feet. Adequate artificial harbors and terminal facilities would be provided at each end of the canal. The summit level section would be 150.6 miles long of which seventy miles would be in Lake Nicaragua. The regulated water elevation of the summit level would vary from 105.5 feet to 110 feet above sea-level. Two feet above 110 feet would be reserved for flood storage although this additional storage would be seldom if ever needed. Flood damage is not feared. The water supply is ample. Such a canal could be constructed in ten years and would cost $722,000,000, including $25,000,000 for requiring rights, franchises and land. The annual cost of maintenance would be $10,800,000. It is estimated that this canal would have a capacity in excess of 80,000,000 tons per year.

The present traffic seeking transit through the isthmus and the prospective increase in such traffic in the next few years do not require that any steps be taken now to provide further capacity at Panama. A second canal would have important advantages, including a saving in time and increased dependability to shipping, an increase in trade and commerce, and improvement in international relations, and added safety and speed in the mobilization of our naval forces in the event of a national emergency. However, the advantages do not appear to be sufficient at the present time to warrant immediate action for the construction of a canal across Nicaragua.

Foreign

New Members for British Rates Tribunal

John Quirey and H. E. Parkes have been appointed members of the Railway Rates Tribunal of Great Britain to succeed William A. Jepson and G. C. Locket, according to a recent announcement of the Ministry of Transport. Mr. Quirey who was a vice-president of the London, Midland & Scottish replaces Mr. Jepson as "the member with experience in the railway business" while Mr. Parkes, who is director of E. Parkes, Ltd., and chairman of the Birmingham Corrugated Iron Company, Ltd., succeeds Mr. Locket as "the member with experience in commercial affairs." Both retiring members have served since the creation of the Railway Rates Tribunal under the Railways Act, 1921.

International Container Competition Trials Completed

Trials were recently concluded at Venice, Italy, in the international container competition conducted under the auspices of the International Chamber of Commerce in co-operation with the League of Nations Advisory and Technical Committee on Communications and Transport, the International Union of Railways, the International Association of Recognized Automobile Clubs, the Central International Tourist Council, the International Federation of Commercial Motor Transport and the International Automobile Standardization Bureau.

The object of the contest was to evolve the most practical solution of the problems attending the handling of freight which requires a joint movement by rail, highway and water. Contemplated in the objectives were the reduction of packing, storage and sorting costs, the effecting of terminal economies, etc.

In reporting the results of the competition the Railway Gazette (London) says that none of the competitors, according to the findings of the judges, presented a container design which was clearly distinguishable as more suitable than the others for the solution of the problem at hand. A total of 23 contestants entered the competition; after preliminary tests all but eight were eliminated. These latter had submitted 13 container designs, nine of the enclosed type and four open. Additional tests of these 13 containers were conducted but the judges still found it impracticable to classify the containers on a basis for the award of prizes. Accordingly, the prize money was allocated among the eight competitors.

In commenting upon the results of the tests the Gazette finds that the greatest difficulty appeared to have been presented in the design of a door of adequate strength. "A similar criticism," it continues, "might be made of the locking devices; also of the methods of lashing the container to the truck—a feature which apparently had not received the same deep study as had the construction of the container itself."

"In reviewing the competition," the article concludes, "it is difficult at this stage to forecast its full value. It has undoubtedly served to give an international interest to the container movement. The research undertaken by the competitors in different countries must undoubtedly hasten the evolution of the ideal container. But, perhaps, more materially, the competition must serve to strengthen the link of co-ordination between rail and road which the adoption of container transport represents."

Motor Truck Users Subject to Penalty Railway Rates

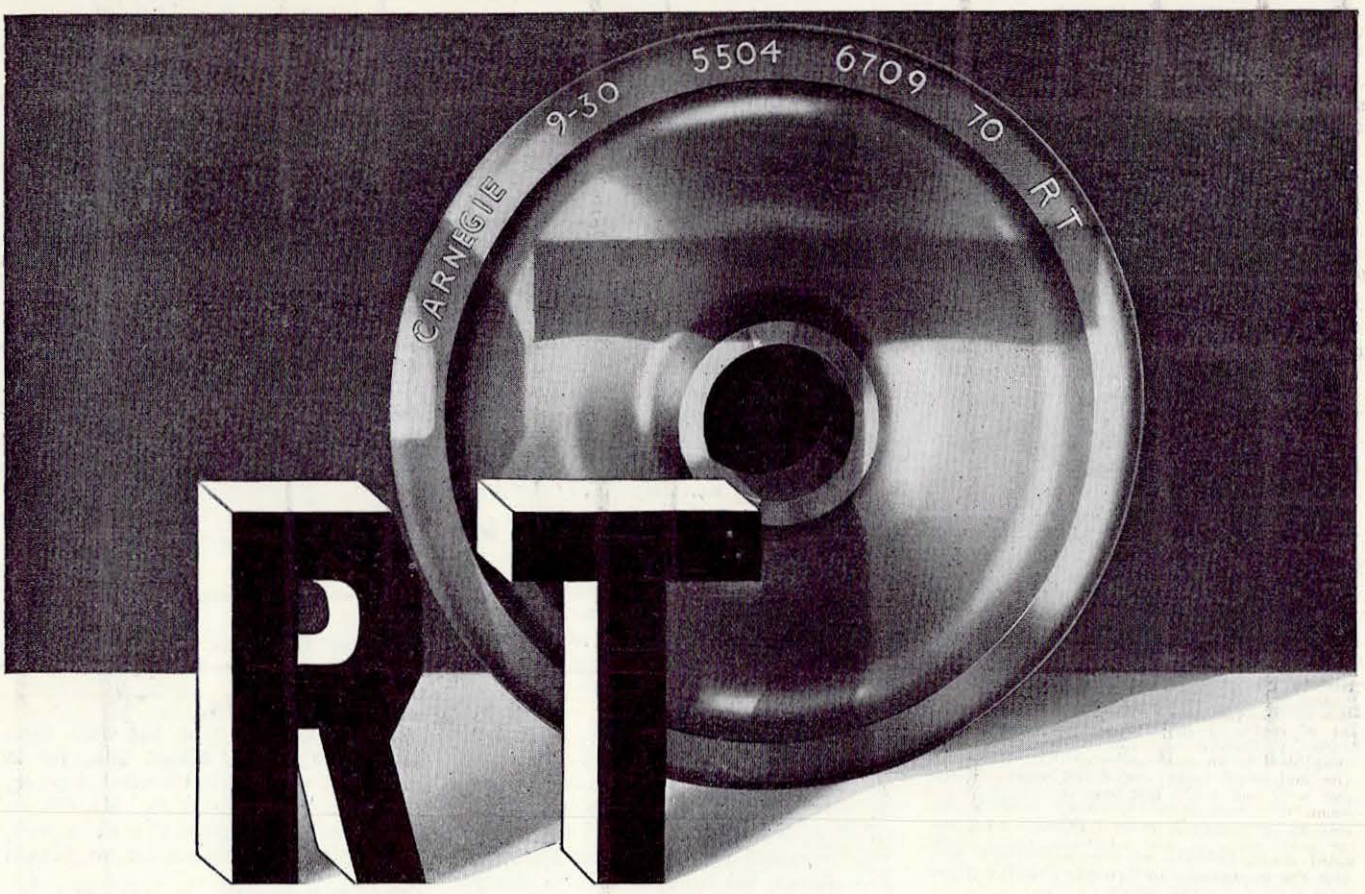
Shippers of freight over the Victorian Railways (Australia) who patronize highway services for the carriage of higher-rated commodities are now subject to charges in excess of the standard scale for such low-grade traffic as they find it necessary to ship over the railways. This feature of the program of these government lines to meet the growing competition of highway vehicles has received legal sanction, according to the annual report of the Victorian Railways Commissioners for the year ending June 30, 1930.

"This course," the report says in defense, "is considered to be an entirely logical answer to the methods of the competitive services. It must not be lost sight of that approximately 70 per cent of the total railway traffic must be carried at very low rates in order that our primary production shall not be imperilled, that it is necessary to charge commensurately higher rates for the more costly goods if an attempt is to be made to balance the ledger. In other words, the low rates can be retained only if higher rated business exists to compensate for them. Clearly then, the person who takes away from the railways the capacity to maintain the low rates cannot equitably consider himself entitled to those rates. Certainly, it could not be regarded as equitable that the taxpayers should be obliged to accept the transport costs of persons who, by removing their high-rated traffic from the railways, have accentuated the unsatisfactory financial position."

The report stresses the "paramount importance" of the highway competition question in view of the fact that the railways "must continue to be maintained and operated for the essential services they render." If the cost of railway operation is not met out of railway revenues, it continues, such costs must come from general taxation and thus "the question which must be faced is whether the community can afford to squander its resources by paying, in addition to these costs, the very considerable charges—which are none the less real because they are not immediately apparent—involved in the operation of competitive road services which are performing no task which cannot be carried out adequately by the existing railway service."

Some relief was also obtained through

Continued on Next Left Hand Page



The MARK of EXTRA SERVICE

STAMPED on Carnegie Wrought Steel Wheels, the initials "R T" (Rim Toughened) identify wheels particularly adapted to modern heavy-duty service—wheels that will give you greater service, greater safety, greater economy. These initials indicate the additional refinement of heat treatment, the process of which produces a wheel with an especially tough rim and with high physical properties—a wheel that has been demanded by, and made especially for the ever-increasing weight and speed of modern transportation. Accurate machining insures perfect rotundity with a consequent increase in riding comfort.

Carnegie Rim-Toughened Wrought Steel Wheels are furnished for passenger, engine truck and tender service. Carnegie Light Weight Freight Car Wheels, rim-toughened, are also available for 70-ton freight service.

The outstanding advantages of wrought steel are well known. Let our wheel engineers bring you complete details of this further improvement. Carnegie Rim-Toughened Wrought Steel Wheels have created a new standard of service and value.

CARNEGIE STEEL COMPANY PITTSBURGH, PENNA.

Subsidiary of United States Steel Corporation

154

CARNEGIE WROUGHT STEEL WHEELS

the authority which the railroads received to enter into individual freight contracts with industries. Under these contracts special rates are granted on the condition that such industries use the railroads exclusively. Despite these expedients, however, it is the opinion of the commissioners that the only real solution of the situation is the enactment of legislation which will lead to proper co-ordination and "insure that commercial road transport shall be permitted to develop not along lines of destructive competition, but upon a basis which is economically sound and in the best interests of the community as a whole."

"Will Container System Dominate Rail Transport?"

"Will the container system eventually dominate rail transport?", the Railway News Letter, issued by the British Railways Press Bureau, asks in a recent article. "Introduced only a few years ago as an experiment," the article continues, "the container has captured the confidence of British shippers to such an extent that the railways can scarcely get containers built quickly enough to meet demands. In 1925 they could be numbered in tens; in 1928 there were 350; now the total number owned by British railways is over 6,000 of varying types constructed to accommodate the numerous classes of freight, while hundreds more are on order.

"The primary attraction of the container is the fact that it can be used equally on rail or road, thus affording 'door-to-door' delivery of fragile and perishable as well as more robust traffic, without transshipment or repacking, thus avoiding possible damage, deterioration, or loss during transshipment."

Building costs are being cheapened by virtue of the fact that bricks and tiles of the best quality can be loaded at the brick-fields into containers, thence conveyed by rail and road to the building sites, and, if required, actually craned to the particular part of the building where the bricks are needed.

Take glass. A big glass-ware firm in Barnsley recently decided to give containers a trial. They loaded two containers with 12,960 glass tumblers, which arrived at their destination with but one tumbler broken. Result—the firm has developed the use of this means of transit to an enormous extent. These experiences are rapidly becoming the commonplaces of freight transport.

Household removals can now be undertaken with containers by the railways, which have made arrangements to cover the services connected with the whole removal, including laying linoleum and hanging pictures. Removal contractors have a firm friend in the container. It is a replica of their own road van, and can be loaded as expeditiously and handed over to the railway company for the complete journey to the new abode, saving, perhaps, a day or more on the journey.

Insulated containers are now used in the midlands and north for the "shop-to-shop" delivery of meat, the railway acting the part of distributor on behalf of the wholesaler.

Specially insulated containers now enable express meat services to be run by road direct from Southampton docks to towns within a radius of about 60 miles, while fast trainloads of meat in insulated containers run daily from the ports of London, Southampton, Avonmouth, Liverpool, Hull, etc., to all parts of the country.

British containers are in constant use between British ports and the Continent. They do not carry coals to Newcastle, but they do take fruit abroad. Bananas and delicate fruits pass regularly in containers from the Southampton, Avonmouth and London docks to the Channel Islands and continental destinations.

A large consignment of theatre seats was recently sent in containers from the factories at Birmingham to Paris. Electrical machinery is passing regularly by this system from Brighton to Paris.

Another interesting development is the despatch of frozen salmon to the Continent. This is received from Labrador, kept in cold storage at the home ports and sent to the English markets or abroad in containers as required.

"To sum up, the container is what one chooses to make it. A cold storage van; brick cart and hod combined; fruit van; furniture van; fish van; perishables deliveries van; and as yet the limit of its possibilities is not even in sight. It is a great aid to British trade development generally and incidentally a useful fillip to the trade of the firms who specialize in building these vehicles.

"The International Union of Railways is holding a competition in Venice to ascertain the most suitable type of container for international use. Two types of British containers are among the last eight, and the jury will be composed of transport officers from various countries, including Great Britain."

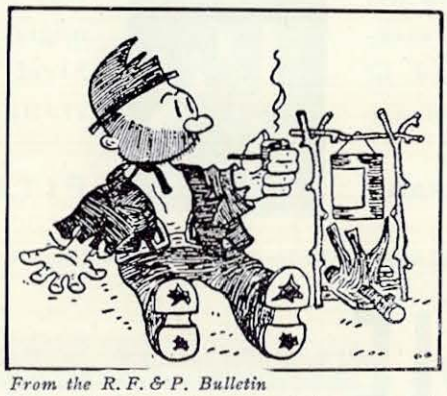
Railways of France Encountering Increased Waterway Competition

Taxpayers are called upon to bear the cost of French waterways, although these waterways benefit only a minority of shippers, says the Railway Gazette (London) in a recent article calling attention to the increasing competition between the inland waterways and railways of France.

The growth of traffic on the waterways, the Gazette article says, is due to the speedier service brought about by the adoption of modern means of propulsion. This increased speed of water transport, it continues, has brought about a change in the character of waterway traffic so that high priced commodities are now being carried at rates lower than the railways are able to offer because the latter are "handicapped by high taxation."

"Part of the competitive power of the waterways," the article concludes, "arises from the fact that the waterways are constructed, maintained and administered at the expense of the state, that is, of the tax payer. On the other hand, the railways must bear the entire cost of construction and upkeep of their lines and take these charges into account in framing their rate schedules, as well as the heavy taxation, from which users of the waterways are almost completely exempt. This privileged treatment of the waterways is aggravated by the fact that the principal canals and rivers with a total navigable length of about 6,500 kilometres only serve districts contiguous to their course, while the country's 42,000 kilometres of railways must serve all districts."

* * *



From the R. F. & P. Bulletin

The only class of man not interested in the prosperity of the railroads—and he still rides them!

Equipment and Supplies

FREIGHT CARS

THE MONSANTO CHEMICAL WORKS has ordered 11 tank cars from the American Car & Foundry Company.

IRON & STEEL

THE PENNSYLVANIA has given a contract to the American Bridge Company for about 600 tons of steel, for bridges at Perryville and Patapsco, Md.

Supply Trade

Samuel G. Allen has been elected president of the **Lima Locomotive Works, Inc.**

J. F. O'Connor, who has been associated with **W. H. Miner, Inc.,** for 27 years as consulting mechanical engineer, will retire on December 31. Mr. O'Connor will be the recipient of a life annuity under a trust established for his benefit.

The Pullman Car & Manufacturing Corp. has been incorporated under Delaware laws with an initial capitalization of $1,000,000, to succeed the Pullman Car & Manufacturing Corp., a subsidiary of Pullman, Inc., incorporated in Illinois on June 18, 1924, to acquire the entire property, business and assets of the manufacturing department of the Pullman Company.

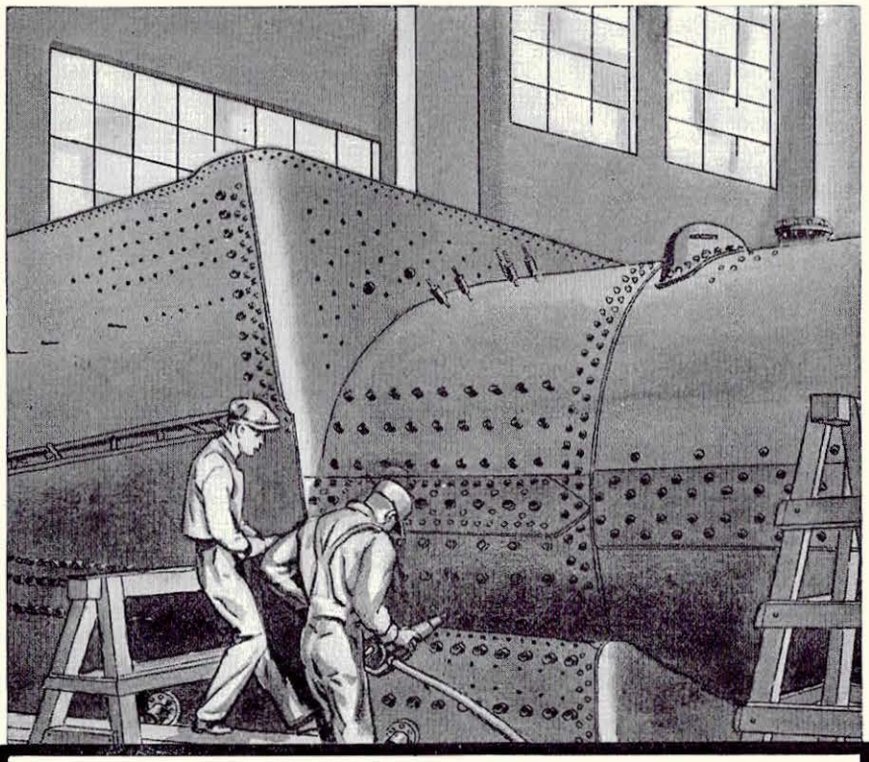
J. N. Barnes, C. M. Burdette and **F. G. Nunneley** have been appointed assistant sales managers in charge of district representatives and a group of dealers for the **Caterpillar Tractor Company,** Peoria, Ill. Mr. Barnes was district representative for the territory around Macon, Ga., Mr. Burdette was formerly with the Hyatt Roller Bearing Company and Mr. Nunneley represented the Caterpillar Tractor Company in Canada.

The Weir Kilby Corporation, Cincinnati, Ohio and Birmingham, Ala., has acquired the **Cincinnati Frog & Switch Company,** Cincinnati. **Charles H. Partington,** the former president of the Cincinnati Frog & Switch Company has resigned and **O. DeG. Vanderbilt, Jr.,** president of the Weir Kilby Corporation, has been elected president also of the Cincinnati Frog & Switch Company. The business of the Cincinnati Frog & Switch Company will be carried on as in the past.

OBITUARY

William W. Blackburn, formerly from 1901 to 1927 vice-president and secretary of the Carnegie Steel Company, who retired from active business in 1927, died at Pittsburgh, Pa., on December 11 after

Continued on Next Left Hand Page



AGATHON NICKEL IRON TRADE MARK

ALLOY STAYBOLTS
will cut down replacements

REG. U. S. PAT. OFF. TONCAN COPPER Mo-lyb-den-um IRON

LOCOMOTIVES have outgrown the old staybolt materials. Higher pressures and bigger boilers coupled with modern methods of operation have brought the modern staybolts of alloy steel or alloy iron.

Staybolt materials developed and proved by Republic Steel Corporation are in use by many of the leading railroads. Toncan Iron, Agathon Nickel Iron and Climax alloy staybolts have repeated records for reducing staybolt renewals.

With alloy staybolt material, corrosion resistance is greater and fatigue resistance is increased.

Whatever your staybolt requirements, Republic has a material to meet them.

CENTRAL ALLOY DIVISION
REPUBLIC STEEL
CORPORATION
Massillon, Ohio

a prolonged illness. He was born at Hollidaysburg in 1859 and had been identified with the steel industry in Pittsburgh for almost half a century, beginning in 1880 as a bookkeeper with the Wilson, Walker Company, which later became a part of the Carnegie Steel Company. With the Carnegie company Mr. Blackburn served as assistant superintendent of the Twenty-ninth Street mill, and then entered the treasury department of the general offices and became assistant treasurer. He was appointed secretary in 1899 and vice-president and secretary in 1901, retiring from the last named position in 1927.

Financial

BALTIMORE & OHIO.—*Omits Common Dividend.*—The directors of this company meeting on December 16 failed to take action on the usual quarterly dividend on the common stock due at this time; 3½ per cent has been declared on this stock at previous meetings this year. The directors at the same meeting declared a quarterly dividend of one per cent on the preferred stock.

BOSTON & MAINE.—*Stock.*—The Interstate Commerce Commission has authorized this company to issue $7,500,000 of 7 per cent prior preference stock to be exchanged for a like amount of its mortgage bonds.

BUFFALO & SUSQUEHANNA.—*Dividend.*—The directors have declared a dividend of $4 a share on its common stock, the first to be paid on these securities in six years.

CHICAGO, BURLINGTON & QUINCY.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon several segments, totaling 33.9 miles, of its 48-mile Mount Pleasant branch in Iowa. The necessity for this step is "due in part to the agricultural depression, but largely as a result of the construction of the State highway and the use of trucks and automobiles," leading to a large decline in traffic.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation for $240,000 of its 4¾ per cent equipment trust of 1928, series I certificates, maturing in installments until 1946. Bids were requested from more than 50 firms, but the only one received was from the parent company, the Chicago & North Western, and its offer of 92.5769 is approved by the commission, making the annual cost to the railroad approximately 6 per cent.

CINCINNATI UNION TERMINAL.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $12,000,000 of its first mortgage 5 per cent series B bonds, maturing in 2020. The issue, which is guaranteed by the Baltimore & Ohio, the Chesapeake & Ohio, the Cincinnati, New Orleans & Texas Pacific, the Big Four, the Louisville & Nashville, the Norfolk & Western, the New York Central and the Pennsylvania, is authorized for sale to J. P. Morgan & Co., and Kuhn, Loeb & Co. at 95, making the annual cost to the railroad approximately 5.27 per cent.

DENVER & RIO GRANDE WESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Howard, Colo., to Calcite, 5.8 miles.

FONDA, JOHNSTOWN & GLOVERSVILLE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to reduce the interest rate and extend the maturity date on an issue of $5,700,000 of 50-year first consolidated mortgage 4½ per cent bonds, now maturing in 1952. It is proposed to extend the bonds, by agreement with the bondholders, to 1982 and to reduce the interest rate from May 31, 1931, to November 1, 1936, to 2 per cent. After that date an additional 2 per cent will be payable if earned and will be cumulative.

GREAT NORTHERN.—*Reduces Dividend.*—Directors of this company have voted to declare a semi-annual dividend of $1 on its preferred stock for the first half of 1932. For the last half of the current year $1.50 was paid. Previously the stock was on a $5 annual basis.

LEESVILLE, SLAGLE & EASTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its entire line from Leesville, La., to Slagle, 10.35 miles.

LEHIGH VALLEY.—*Bonds.*—The Interstate Commerce Commission has authorized this company to pledge and repledge $10,000,000 of its general consolidate mortgage 5 per cent bonds as collateral security for short term notes. The company has borrowed $3,000,000 at 5 per cent from J. P. Morgan & Co., for which half the above bonds are used as collateral and a similar loan under similar terms has been arranged with the First National Bank (New York).

MARINETTE, TOMAHAWK & WESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon that part of its line which extends from Somo Junction, Wis., westerly to the terminus of the line, 13.4 miles.

MISSOURI-KANSAS-TEXAS.—*Omits Preferred Dividend.*—The directors of this company have omitted the quarterly dividend of $1.75 on its preferred stock.

NEW YORK CENTRAL.—*F. E. Williamson Asks Authority to Serve as President and Director.*—F. E. Williamson, who has been elected president of the New York Central effective on January 1, has applied to the Interstate Commerce Commission for authority to serve as president and director while also holding directorship or office with any of the 80 or so subsidiary and affiliated companies of the system. In his application it was stated that Mr. Williamson owns stock in the following railroads: Chicago, Burlington & Quincy; Colorado & Southern; Great Northern; Northern Pacific; Union Pacific; Southern Pacific; Illinois Central; Louisville & Nashville; Canadian Pacific; Missouri-Kansas-Texas; Pennsylvania, and Minneapolis, St. Paul, & Sault Ste. Marie.

NEW YORK, CHICAGO & ST. LOUIS.—*Bonds.*—The Interstate Comemrce Commission has authorized this company to pledge and repledge for the next two years $4,500,000 of its refunding mortgage 4½ per cent series C bonds as security for short term notes.

NICHOLAS, FAYETTE & GREENBRIER.—*Acquisition and Stock Issue.*—The Interstate Commerce Commission has authorized this company to acquire the lines of the Sewell Valley, the Loop & Lookout and the Greenbrier & Eastern, and to issue $7,072,051 of common stock—$3,600,000 to be used to redeem an equal amount of its promissory notes and the remainder to be delivered to the purchased companies in consideration for their lines of railroad—the purchased lines in turn to deliver these securities in equal amounts to the New York Central and the Chesapeake & Ohio, which are lessees jointly of these lines.

SEABOARD AIR LINE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon that portion of its St. Marks, Fla., branch extending from the Smith-Vereen connection track to the end of the line at St. Marks.

ST. LOUIS—SAN FRANCISCO.—*Bonds.*—This company has been authorized by the Interstate Commerce Commission to issue $2,446,000 of prior-lien mortgage 6 per cent bonds and $532,000 of refunding mortgage bonds to be pledged with the trustee of the consolidated mortgage, and $4,014,000 of consolidated mortgage 6 per cent bonds, Series B, as collateral for short-term notes; also an equal amount of Series C consolidated mortgage bonds in exchange for the Series B bonds when presented for conversion.

Average Prices of Stocks and of Bonds

	Dec. 15	Last week	Last year
Average price of 20 representative railway stocks..	30.48	33.78	76.63
Average price of 20 representative railway bonds..	60.04	67.38	89.44

Dividends Declared

Canada Southern.—1½ per cent, semi-annually, payable February 1 to holders of record December 28.

Chicago, Indianapolis & Louisville.—Common and Preferred dividends omitted.

Erie.—First Preferred dividend omitted.

Great Northern.—Preferred, 1 per cent, payable February 1 to holders of record December 29.

Mahoning Coal R. R.—Common, $12.50, quarterly, payable February 1 to holders of record January 15; Preferred, $1.25, payable January 2 to holders of record December 23.

Missouri Pacific.—Preferred dividend omitted.

Northern Pacific.—75c, quarterly, payable February 1 to holders of record December 31.

Pittsburgh & Lake Erie.—$2.50, semi-annually, payable February 1 to holders of record December 28.

Southern.—Common and Preferred dividends omitted.

Texas & Pacific.—Common dividend omitted; Preferred, 1¼ per cent, quarterly, payable December 31 to holders of record December 14.

Continued on Next Left Hand Page

BETTER FIRES

FIREBAR CORPORATION
CLEVELAND OHIO.

Construction

ATLANTIC COAST LINE.—The Interstate Commerce Commission has denied this company's application for a certificate that public convenience and necessity require it to build a line from Yuste, Fla., to Monticello, 4.8 miles, in place of a line which it abandoned without authority in 1927 in connection with the building of a new line. The supreme court of Florida, on application of the Florida railroad commissioners, had issued an order requiring the company to restore the track and service and the Supreme Court of the United States declined to review the case. The commission had previously held that construction in compliance with the mandate of the court would not require the issuance of a certificate. Commissioners Mahaffie, Lewis and Porter dissented, saying the application should have been dismissed.

BOSTON & MAINE.—This company has authorized the elimination of a grade crossing at Main street, Waltham, Mass., and has received bids for similar work at King street, Littleton, Mass. These projects, which are estimated to cost $450,000 and $110,000, respectively, are part of a grade separation program authorized last spring in co-operation with the state of Massachusetts, which is to pay part of the cost of the work, as previously reported in *Railway Age*.

CHICAGO, ROCK ISLAND & PACIFIC—MISSOURI-KANSAS-TEXAS — ST. LOUIS SOUTHWESTERN.—These roads and the city of Dallas, Tex., have come to an agreement regarding the construction of a subway to carry the combined Lamar and McKinney streets under the tracks of the three roads. This subway will have a total cost of about $255,000, of which $123,000 will be paid by the city, $99,000 by the Katy, $20,000 by the Cotton Belt, and $13,000 by the Rock Island. The structure will be about 1,084 ft. long and will pass under 12 tracks. It will be of reinforced concrete construction and will carry two 20-ft. roadways and a 6-ft. sidewalk. It is expected that work on the project will commence within the next 60 days.

ERIE.—The Public Service Commission of New York has directed the elimination of the Stearns crossing of the Erie on the Wellsville-Andover state highway, 1.3 miles west of Andover, N. Y. Elimination will be accomplished by carrying the highway over the present grade of the railroad at a point about 215 ft. west of the present crossing.

NEW YORK CENTRAL.—The New York Public Service Commission and the Syracuse Grade Crossing Commission have approved detailed plans and specifications and an estimate of cost for changes to be made in this company's West Street yards, including the team and holding yard south of Erie boulevard and east of Geddes street, Syracuse, N. Y., in connection with elimination of grade crossings and improvement of terminal facilities planned in that city by the New York Central. A large part of the work will be done by company forces. The Public Service Commission has also ordered the reconstruction of the highway bridge carrying Union and John streets over this railroad's tracks in Poughkeepsie, N. Y.

PENNSYLVANIA.—In connection with its general program of improvements in Newark, N. J., this company has awarded to J. Rich Steers, Inc., New York, a contract amounting to $209,500 for the construction of an express building, driveways, paving, sewers, etc., at South Broad street. Contracts have also been awarded to the Empire Construction Company of Baltimore, Md., for the construction of bridges and tracks and for other work incidental to a re-location of the railroad company's line at Elkton, Md., at a total cost of approximately $200,000; and to the Spiniello Construction Company of Newark for the construction of a bridge to carry the Pennsylvania tracks over Plainfield avenue, together with approaches, roadways, sidewalks, drainage facilities, etc., at Stelton, N. J., at a cost of approximately $106,500.

WESTERN PACIFIC CALIFORNIA.—This company has applied to the Interstate Commerce Commission for an extension of time to January 1, 1933, for the beginning of construction on its proposed line from San Francisco, Cal., to Niles. The company is still negotiating with the Southern Pacific for trackage rights over its Dumbarton bridge, which would eliminate part of the proposed construction.

THE TIMES (London), in reporting in its weekly Trade and Engineering Supplement for September 26 the removal of a Ford Motor Company plant from Trafford Park, Manchester, (England), to Dagenham, Essex, (near London), gives an account of an unusually heavy freight movement which was handled by the London, Midland & Scottish and London & North Eastern Railways far more rapidly, systematically and efficiently than could have been the case under any form of highway transport organization.

"The railway companies," according to the Times, "took part in a removal which was thoroughly organized and carried through on a systematic basis. The transfer of the works of the Ford Motor Company was planned very carefully, and the railway companies ran 16 special trains, each composed of about 50 cars, at a high speed from Manchester to Dagenham, the journey (of about 200 miles over heavy traffic lines) being performed in some cases in about six hours. The speed of these trains may be judged by the fact that one of them ran for some distance in front of a race special. Each piece of machinery was numbered before it was loaded, and each car also had its number, while the plan of the removal was so complete that the position of each car and of each piece of machinery was marked out at Dagenham before it arrived. In this way it was found possible to reduce the time from the start of dismantling machinery at Trafford Park to the completion of erection at Dagenham to 48 hours."

Railway Officers

EXECUTIVE

S. M. Baker, assistant to vice-president of the Railway Express Agency, with headquarters at New York, has been appointed general auditor at Chicago, Ill., succeeding **Richard Burr,** who has retired from active service. **Paul Gross, Jr.,** has been appointed to succeed Mr. Baker as assistant to vice-president.

Frank C. Nicodemus, Jr., has been appointed co-receiver of the Wabash, with headquarters at New York. Mr. Nicodemus was born at Baltimore, Md., on December 11, 1881, and received his education at Dickenson Seminary, Rockville Academy and the University of Maryland. In 1909, jointly with Henry E. Cooper, he became purchaser of foreclosure sale of the properties of the Western Maryland Railway Company, and represented the re-organization committee of the Western Maryland. In 1911 he acted in a similar capacity in the purchase at foreclosure sale of the properties of the International-Great Northern. In 1915, he became identified with the re-organization of the Wabash, and in 1929, he was counsel representing railroad interests in the re-adjustment of express operations on the railroads and the creation of the present Railway Express Agency. At present Mr. Nicodemus is also co-receiver of the Ann Arbor Railroad Company, a subsidiary of the Wabash; general counsel of the St. Louis Southwestern; associate counsel to the board of the Denver & Rio Grande Western, and a member of the law firm of Pierce & Greer.

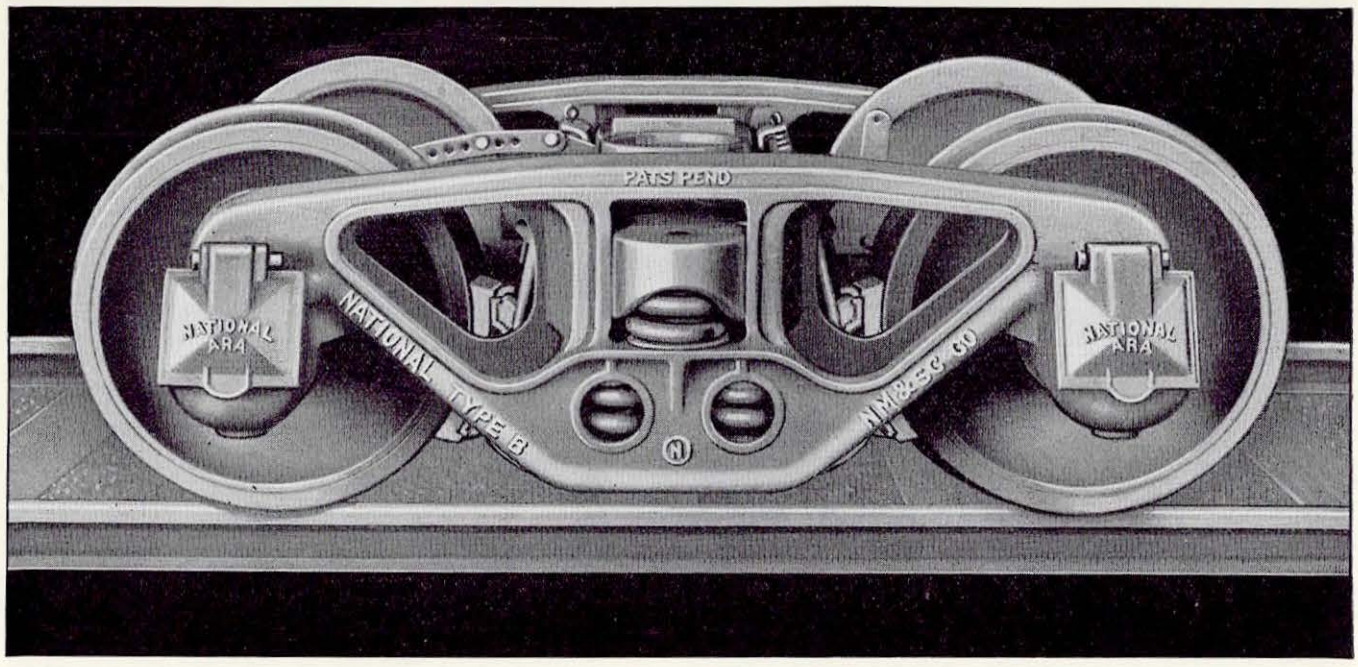
Harry H. Brown, general traffic manager of the Great Northern, has been promoted to vice-president in charge of traffic, with headquarters as before at

Harry H. Brown

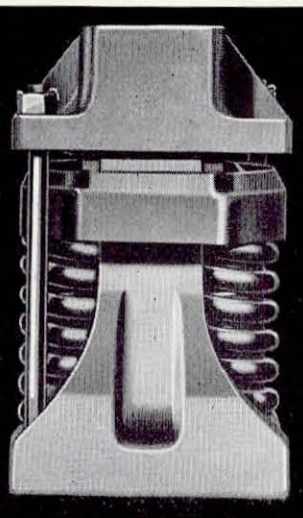
St. Paul, Minn., to succeed **William P. Kenney,** vice-president and director of traffic, whose election as president of this road was reported in the *Railway*

Continued on Next Left Hand Page

TRUCKS ››› that Speed Train Operation



GREATER STRENGTH FOR MODERN RAILROADING



M17
National Draft Gear
Another contribution by National to profitable freight operation. This gear stands first in the combination of capacity, sturdiness and endurance.

THE MODERN combination of heavy loads and high speeds demands new standards of quality and performance from every item in freight equipment. ♦♦ National Type B trucks give increased strength per pound of weight—strength well in excess of present-day operating requirements which insures economical and profitable operation.

NATIONAL MALLEABLE AND STEEL CASTINGS CO.
General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Washington, Chicago, St. Louis, San Francisco
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

NATIONAL TYPE B TRUCKS

Age for December 12. The position of general traffic manager has been discontinued. Mr. Brown has been associated with the traffic department of the Great Northern at St. Paul for more than 37 years. He was born on June 11, 1876, at Chicago, but soon moved to St. Paul, where he graduated from high school in 1893. Shortly thereafter he entered the general freight office of the Great Northern at that point as an office boy. In that office he advanced through the positions of correspondence clerk, mailing clerk, assistant traffic clerk, rate clerk and traffic clerk, being promoted to chief clerk in 1904. Four years later he was further promoted to assistant general freight agent and in 1916 he was appointed general freight agent. Two years later Mr. Brown was promoted to assistant traffic manager, which position he held until 1920, when he was appointed assistant freight traffic manager. Eight years later he was promoted to general traffic manager, the position he was holding at the time of his recent advancement to vice-president in charge of traffic, which will become effective January 1.

OPERATING

J. E. Lovejoy has been appointed superintendent of the Nevada Northern, succeeding **T. J. Duddleson,** deceased.

F. B. Whitman, trainmaster of the Aurora division of the Chicago, Burlington & Quincy, with headquarters at Aurora, Ill., has been transferred to the Hannibal division, with headquarters at Hannibal, Mo., succeeding **C. L. Bakke,** who has been assigned to other duties, and the position of trainmaster at Aurora has been discontinued. **J. M. Oldham,** trainmaster of the Omaha division, with headquarters at Omaha, Neb., has been transferred to the Ottumwa division, with headquarters at Ottumwa, Iowa, where he succeeds **F. E. French,** assistant superintendent, who has been assigned to other duties. The position of assistant superintendent at Ottumwa has also been discontinued.

TRAFFIC

J. F. Pewters, assistant general freight agent of the Great Northern, with headquarters at St. Paul, Minn., has been promoted to assistant freight traffic manager with the same headquarters, a newly-created position. Mr. Pewter's entire railway career of more than 30 years has been spent in the traffic department of the Great Northern. He was born on April 1, 1883, and while still attending high school at St. Paul he worked for the Great Northern as a water boy. Later he served as messenger, car sealer and clerk at the Hamline (Minn.) transfer, being in 1906 promoted to chief clerk at that point. Five years later, Mr. Pewters was further advanced to chief clerk in the Great Northern's freight office at St. Paul, and in 1915 he was appointed agent at Minneapolis Junction. A year later he was sent as assistant agent to Great Falls, Mont., where four years later, he was promoted to general agent. He was transferred to Spokane, Wash., in 1922, and in 1925 he was appointed assistant

J. F. Pewters

general freight and passenger agent for Montana, with headquarters at Helena, Mont. Mr. Pewters returned to St. Paul as assistant general freight agent on June 15, 1930, where he remained until his recent promotion to assistant freight traffic manager, effective January 1.

ENGINEERING AND SIGNALING

J. B. Mabile, supervisor of work equipment of the Chicago, Rock Island & Pacific, with headquarters at Chicago, has been appointed to the newly-created position of general maintenance inspector, with headquarters at the same point, and the position of supervisor of work equipment has been discontinued.

MECHANICAL

Following the abolition of the Dakota, Montana and Seattle divisions of the Northern Pacific, as noted in the *Railway Age* for December 12, a number of changes among officers in the mechanical department have taken place. **W. E. Dunkerly,** master mechanic of the Dakota division, with headquarters at Jamestown, N. D., has been transferred to the Pasco division, with headquarters at Pasco, Wash., where he succeeds **M. A. Daly,** who has been appointed fuel supervisor of lines west of Paradise, Mont. **E. H. Carlson,** master mechanic of the Montana division, with headquarters at Livingston, Mont., has been transferred to the Rocky Mountain division, with headquarters at Missoula, Mont., where he succeeds **Alex McPhee. J. A. Marshall,** master mechanic of the Seattle division, at Seattle, Wash., has been transferred to the Tacoma division, which now includes the Seattle division, with headquarters at Tacoma, Wash., where he succeeds **R. P. Blake,** who has been appointed general mechanical inspector, with headquarters at St. Paul, Minn. **L. J. Gallagher,** master mechanic of the Fargo division, has transferred his headquarters from Dilworth, Minn., to Jamestown, N. D. **M. F. Brown,** general fuel supervisor, at St. Paul, has been appointed fuel supervisor of the lines east of Paradise, with the same headquarters, and the position of general fuel supervisor has been abolished. **F. J. Regan** has been appointed assistant fuel supervisor on the lines east of Paradise, with headquarters at Livingston.

OBITUARY

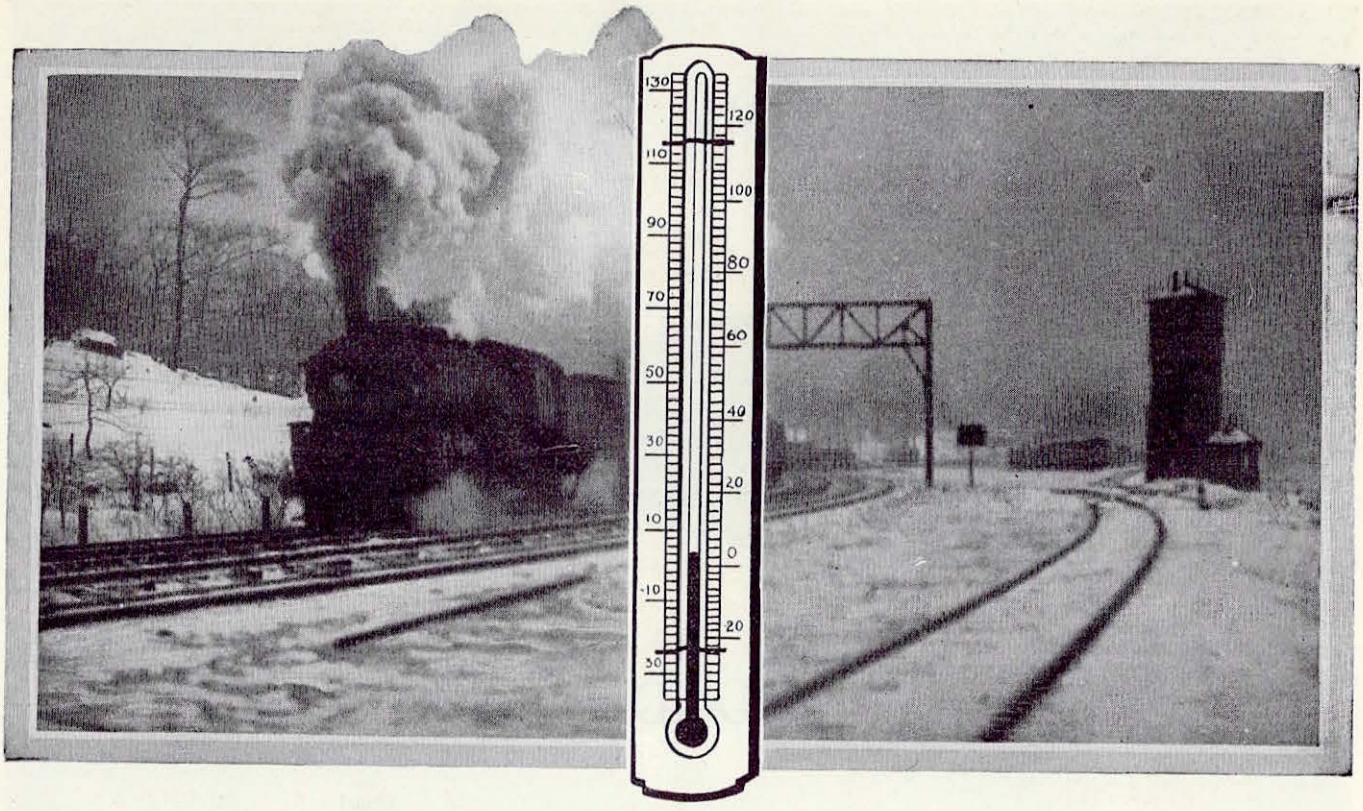
E. L. Moore, general manager of the Evansville & Ohio Valley, with headquarters at Evansville, Ind., died on December 5,

C. J. Niehaus, real estate and tax agent of the Colorado & Southern, with headquarters at Denver, Colo., died in that city on December 10.

Charles N. Kalk, who retired in 1917 as chief engineer of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., died on December 7, at Seattle, Wash., at the age of 71 years. Mr. Kalk was born at Fond du Lac, Wis., and first entered railway service in 1881 in the engineering department of the Northern Pacific. Two years later he left the service of this road to engage in private business, returning to railway work in 1887 with the engineering department of the Soo Line, where he remained until 1890, when he went with the Wisconsin Central as assistant engineer. Two years later, Mr. Kalk again left railway service but returned to the Wisconsin Central in 1893 as chief engineer. In 1909, when the Wisconsin Central was taken over by the Soo Line, Mr. Kalk was appointed principal assistant engineer of the latter road, being promoted to chief engineer in 1913, which position he held until his retirement.

* * *

A Pennsylvania Train Southbound near Red Bank, N. J.



Reduce Winter Operating Costs

WINTER is here — freezing temperatures and stormy days are bound to increase operating costs.

Preparation will save thousands of dollars — renewal of worn out Bushings, Packing Rings and Bull Rings in the Valves and Cylinders will prevent many delays, failures and expensive repair jobs.

To insure maximum economies make sure that these parts are made of HUNT-SPILLER *Air Furnace* GUN IRON. Its wear-resisting qualities will insure steam tight operation, lower fuel consumption, greater efficiency and low maintenance costs.

HUNT-SPILLER MFG. CORPORATION
J.G. Platt, Pres & Gen. Mgr. V.W. Ellet, Vice-President

Office & Works
383 Dorchester Ave. South Boston, 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 907 Aqueduct St., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 80 Church Street, New York, N. Y.

HSGI
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished for Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER GUN IRON

Air Furnace

The Gas-Electric Rail Car

G-E equipped gas-electrics are paying for themselves in a period of two to four years.

G-E equipped gas-electrics have, in many cases, cut operation costs in half (as compared with steam-train operation).

G-E equipped gas-electrics have an average availability of more than 90 per cent.

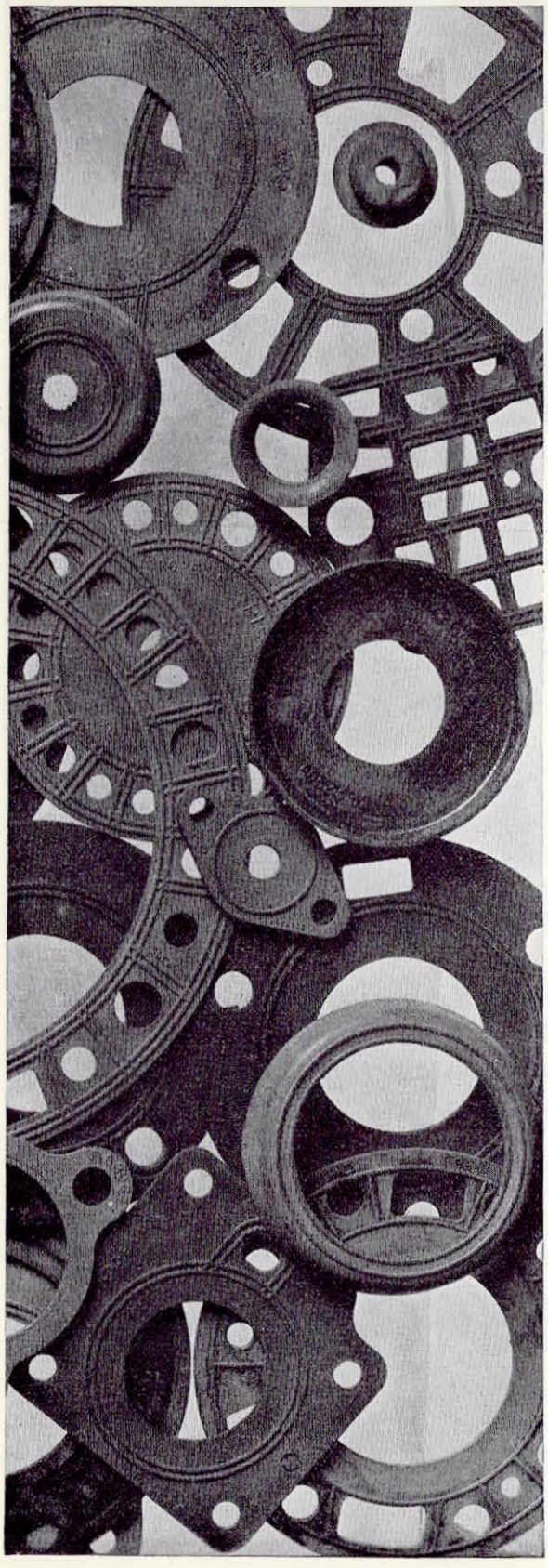
Within the last two years — 1930 and 1931 — thirteen prominent railroads have purchased a total of 52 G-E equipped gas-electric rail cars. And these cars were purchased because substantial savings could be made quickly and surely. To-day, the gas-electric rail car offers a golden opportunity to effect lasting economies. We invite your interest. Address the G-E office nearest you or General Electric Company, Schenectady, N. Y.

391-50

GENERAL ELECTRIC

JOIN THE "G-E CIRCLE"—SUNDAYS AT 5:30 P. M. E. S. T. ON N. B. C. NETWORK OF 54 STATIONS—WEEK-DAYS (EXCEPT SATURDAY) AT NOON

WABCO



To Make and Hold an Air Tight Seal

IN gasket manufacture, the moulding of a sealing bead that will make and hold an air-tight joint is by no means an easy matter. It has taken many years of research in the design and construction of moulds to perfect those which now produce the perfect beads you find on Wabco Gaskets.

These beads *make* an air-tight joint and *hold* it air-tight during the entire life of the Wabco compound. This compound, as all users know, lives for an unusually long period. It has been specially blended to resist the oil, the heat, and the wear, or any combination of these various destructive factors met with under various conditions.

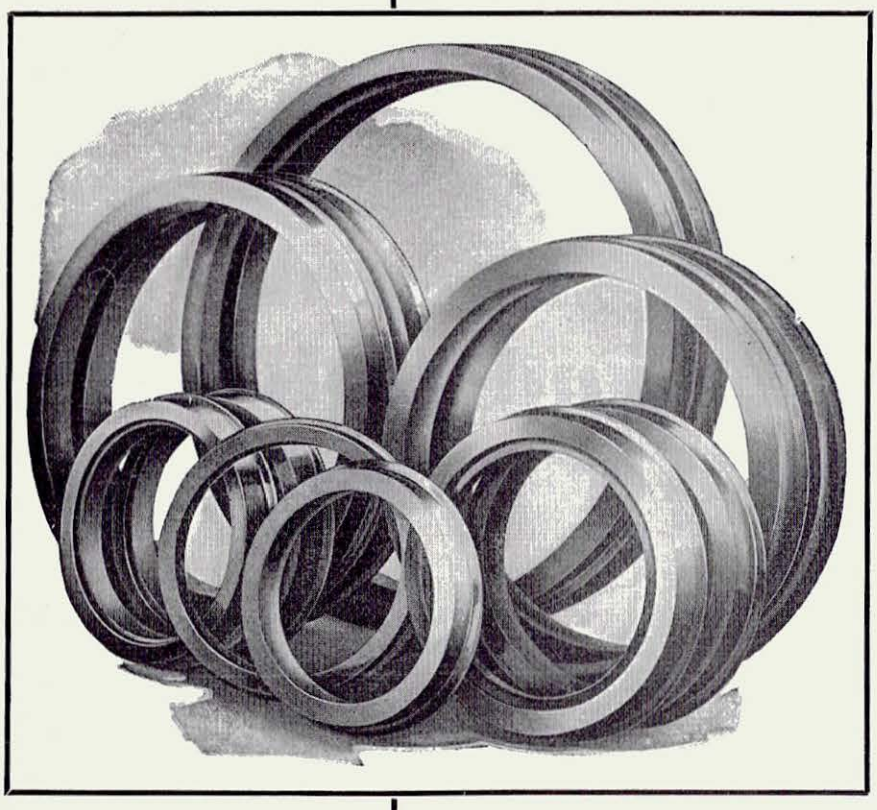
The bead, in other words, is not only accurately moulded but is long preserved by the use of compounds which are calculated to withstand particular conditions. When you apply a Wabco Gasket, therefore, you not only make the tightest seal to start with but insure against the possibility of leakage for the longest period of time.

WESTINGHOUSE AIR BRAKE CO.

GENERAL OFFICE AND WORKS

WILMERDING, PA.

(1221)

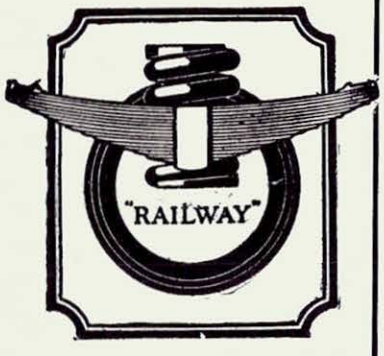


Tires Wheels Springs

For Every Type of Rolling Stock In Every Class of Service

"RAILWAY" locomotive and car wheel tires are made to meet the particular requirement of service. It may be the long continued run of the passenger train or the many stops and starts of the switcher with its constant crowding through switches. For every type of use a tire must be employed that will give the maximum life if there is to be the greatest economy.

Only experience and laboratory research can provide that knowledge. You find it in all "Railway" products.

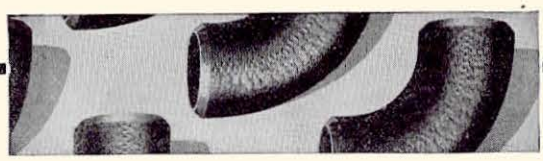


Railway Steel-Spring Company

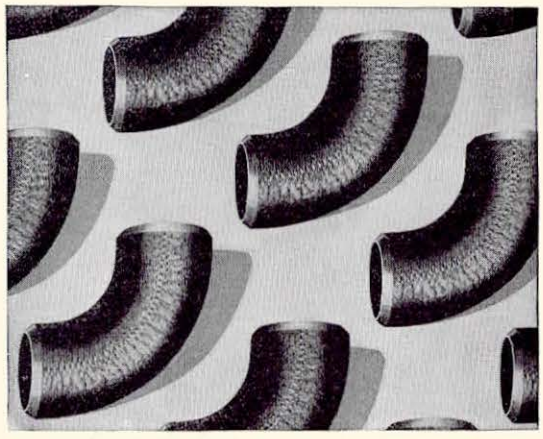
30 CHURCH ST., NEW YORK

Branch Offices:

Chicago, Ill.	Detroit, Mich.	St. Louis, Mo.	Pittsburgh, Pa.	Montreal, Que.
St. Paul, Minn.	Washington, D. C.	Cleveland, Ohio	Denver, Colo.	San Francisco, Cal.



HOLD THOSE SPECIFICATIONS!



Here's real news for Pipe Users...

SINCE welding fittings were first developed there has been a steadily increasing demand for such fittings made of genuine Reading *Puddled* Iron — the kind of wrought iron that has proved its value by generations of service.

Such welding fittings are now available—*for the first time.*

Now you can make a welded Reading Puddled Iron Pipe system of superior resistance to corrosion, at every point.

Now you can make piping systems of other metals *better* by using welding ells of this superior material at critical points.

Now you can be assured of longer life in piping systems, greater freedom from trouble *plus* the efficiency of welding fittings.

Made by MIDWEST *from Reading Puddled Iron*

These new fittings are made by the new patented process of the Midwest Piping & Supply Company, Inc., 1450 South Second Street, St. Louis Mo., from specially selected Reading *Puddled* iron skelp. You can get them in the sizes you need. They are identified by a special label and Reading knurl showing that they are made of genuine Reading *Puddled* Iron.

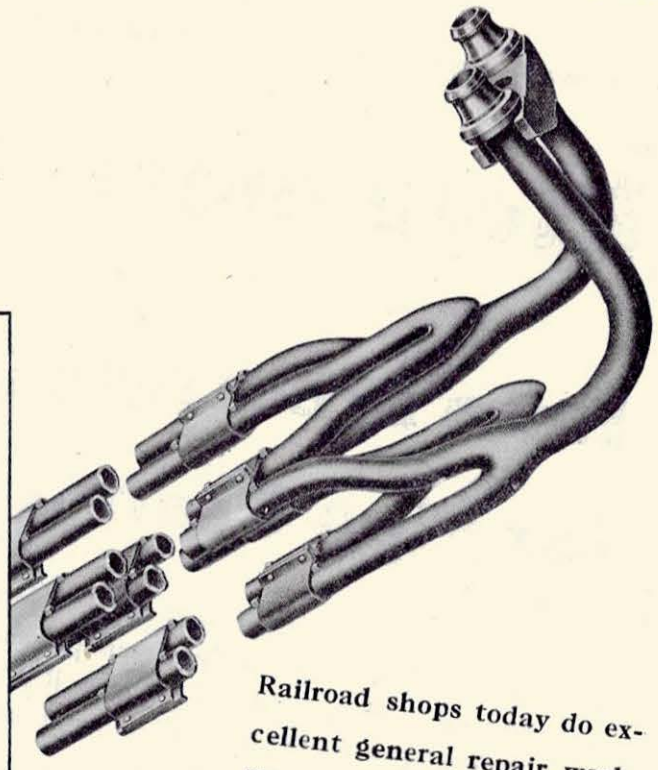
Ask Midwest for complete information about these fittings which give to welding ells all the time-tested resistance to fatigue, corrosion, and other pipe enemies that has always characterized genuine Reading *Puddled* Iron Pipe.

READING IRON COMPANY

General Offices: 401 N. Broad St., Philadelphia, Pa.
Mills: Reading, Pa.

Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Detroit, Houston, Kansas City, Los Angeles, New York, Pittsburgh, San Francisco, Seattle, St. Louis, Tulsa

Reading Products: Pipe Tubing Casing Sucker Rods Nipples Couplings Bar Iron Blooms Cut Nails Boiler Tubes



Certified

Superheater

Units

Railroad shops today do excellent general repair work. They are equipped with modern machinery operated by trained men—the result is rebuilt locomotives, which far exceed in efficiency and freedom from failure, those of even a few years ago.

Likewise years of training are necessary to recondition the superheater—if the locomotive is to develop its full boiler capacity. This requires special machinery and special training available only at the Elesco plant. The machinery and men employed in the manufacture of new superheater units are also employed in the remanufacture or rebuilding of old, unserviceable units.

Send your unserviceable superheater units to the Elesco plant where such facilities are available. They will be returned to you for many more years of troublefree service. This is guaranteed.

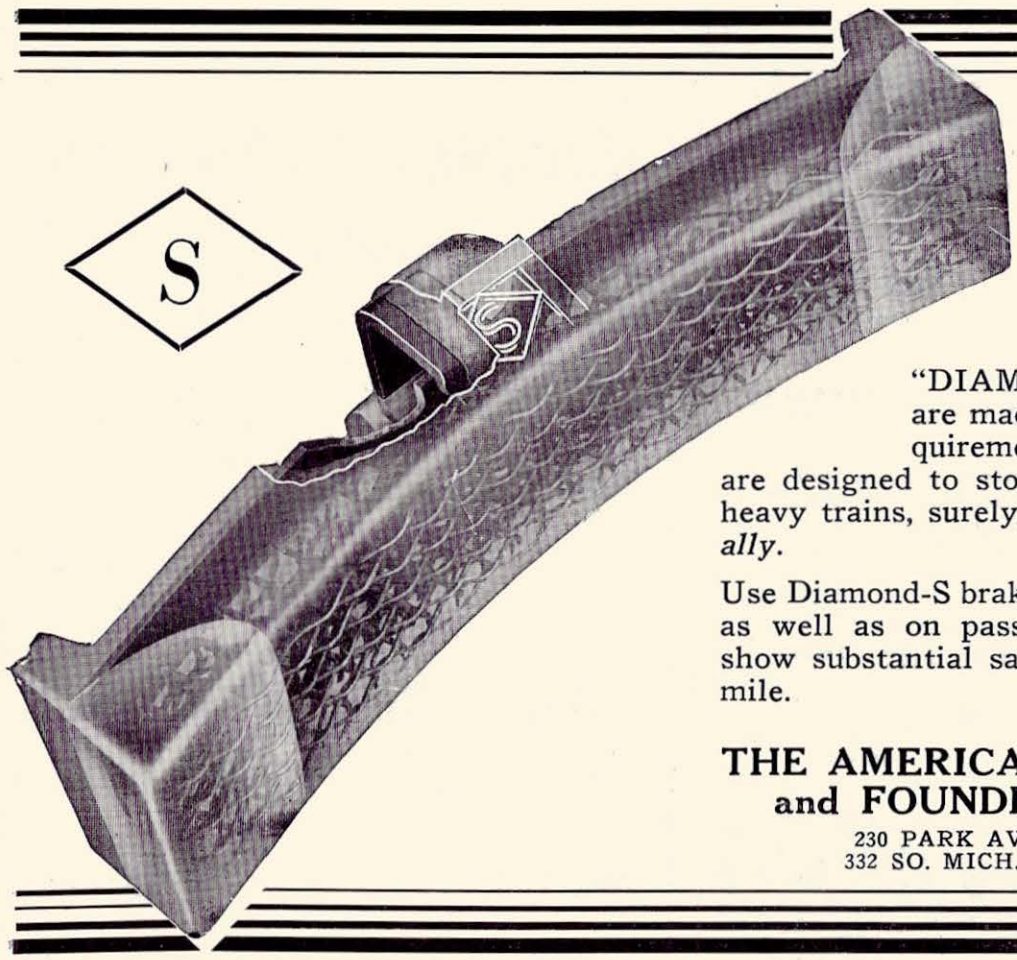
THE SUPERHEATER COMPANY

60 East 42nd Street, New York — Peoples Gas Building, Chicago

A-665

Canada: THE SUPERHEATER CO., LTD., Montreal

Superheaters — Feed Water Heaters — Exhaust Steam Injectors — Superheated Steam Pyrometers



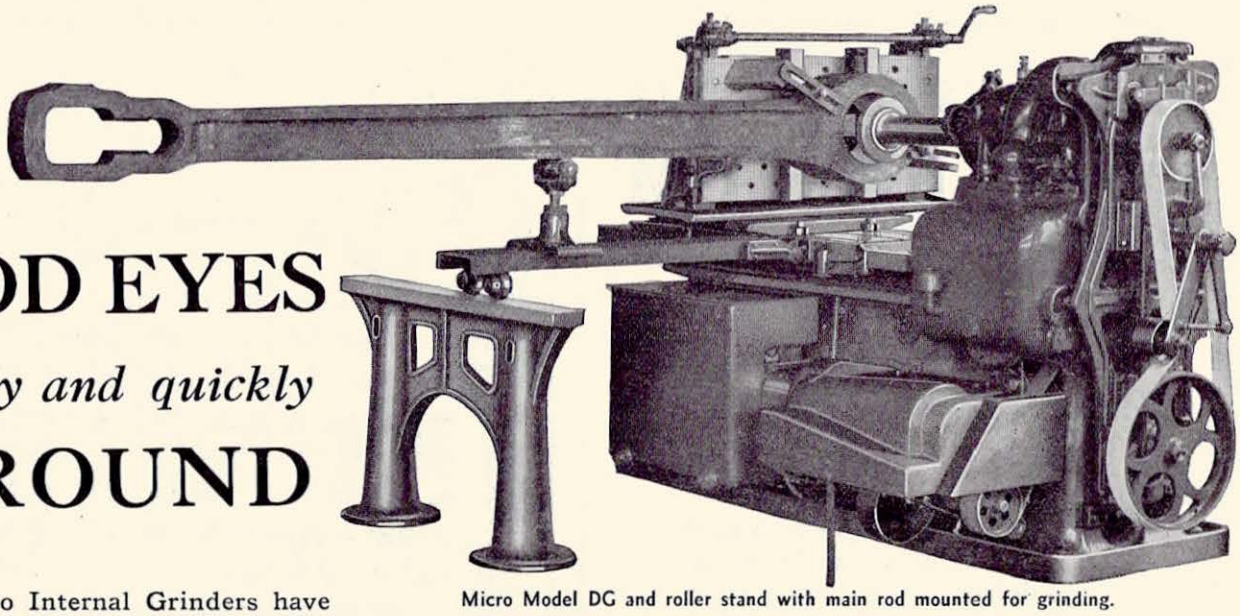
"DIAMOND-S" brake shoes are made to meet railroad requirements of today. They are designed to stop modern high speed, heavy trains, surely, safely and *economically*.

Use Diamond-S brake shoes on freight cars as well as on passenger equipment and show substantial savings in costs per car mile.

THE AMERICAN BRAKE SHOE and FOUNDRY COMPANY

230 PARK AVE., NEW YORK
332 SO. MICH. AVE., CHICAGO

ROD EYES
easily and quickly
GROUND



Micro Model DG and roller stand with main rod mounted for grinding.

Micro Internal Grinders have proven themselves ideal for grinding Side and Main Rod Eyes where floating bearings are used. ¶The added bearing surface obtained with floating bushings becomes ineffective if rod eyes are out of round or if bushing seats are so rough as to hinder free running. ¶The MICRO method of mounting rods, as illustrated, insures a quick set-up and affords a rigid mounting during the grinding operation. ¶A Micro Grinder in your Rod department will not only insure rod eyes of absolute roundness and maximum smoothness of finish, but it will also prove a real economy measure from the viewpoint of time and labor saved. Complete information on request.

MICRO MACHINE COMPANY

Bettendorf — MANUFACTURERS AND DESIGNERS OF *PRECISION GRINDERS* FOR ALL PURPOSES — Iowa, U-S-A

PANTASOTE

The National Standard for Car Curtains and Seats

Since 1897 this remarkable material has been lowering the cost of maintenance by added years of wear.

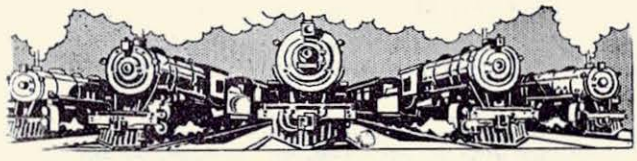
AGASOTE HEADLININGS

The only headlining made in one piece and which possesses the desirable qualities of wood and steel without their defects. Will not separate, warp or blister and is completely waterproof.

The **PANTASOTE CO.** Inc.

250 Park Ave., New York

Peoples Gas Bldg. DETROIT CHICAGO SAN FRANCISCO



MAGNUS COMPANY

(INCORPORATED)

Journal Bearings

AND

Bronze Engine Castings

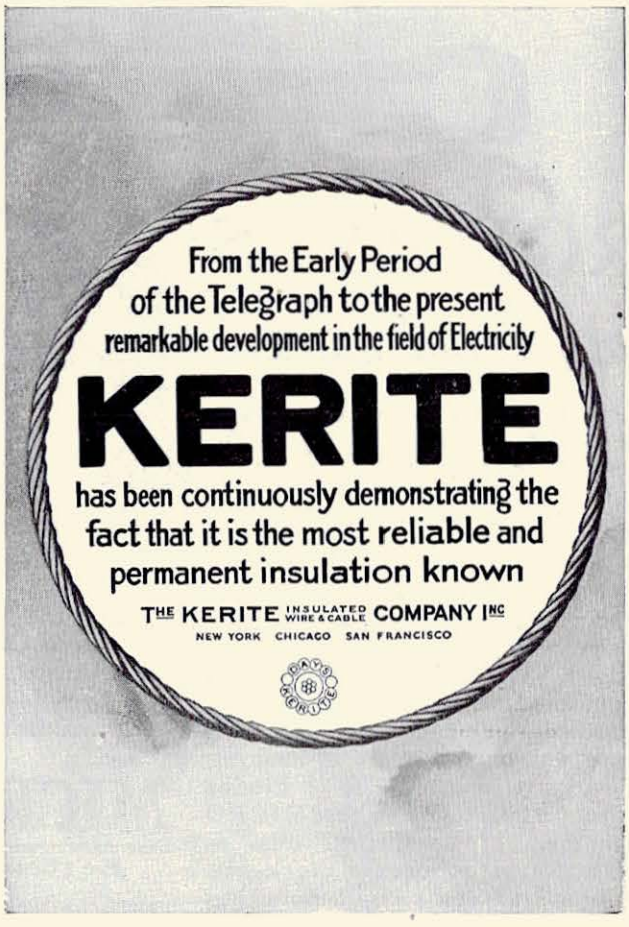
New York Chicago

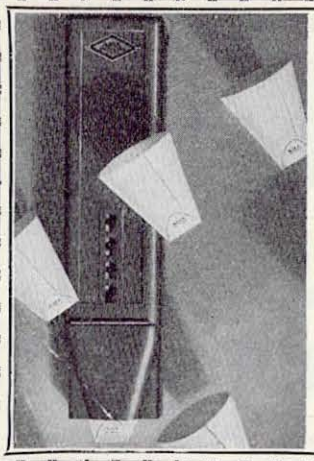
THREE *FACTS* ABOUT CORO-NOLEUM

1. It Cleans and Disinfects in one operation, eliminating soap.
2. Less is required for a satisfactory solution because it is so highly concentrated.
3. It is guaranteed to be 5 to 6 times as powerful bacteriologically as Carbolic Acid (Phenol) when tested by the Hygienic Laboratory Phenol Coefficient Method of the U. S. Public Health Service.

All these mean Economy and Efficiency

WEST DISINFECTING CO.
RAILROAD DEPARTMENT
RAILWAY EXCHANGE BLDG. CHICAGO, ILL.


From the Early Period
of the Telegraph to the present
remarkable development in the field of Electricity
KERITE
has been continuously demonstrating the
fact that it is the most reliable and
permanent insulation known
THE KERITE INSULATED WIRE & CABLE COMPANY INC
NEW YORK CHICAGO SAN FRANCISCO



Six Reasons Why Railroad Men Prefer Ajax Cup Equipment

1 — Ajax Cups are delivered open. Passengers like them because they fit the hand; do not drip, spill, collapse.

2 — Ajax Cups cannot be left standing around to spill on upholstery.

3 — Ajax Cabinets are easy to reload.

4 — Ajax Cabinets are sturdy, unbreakable, trouble-proof.

5 — Ajax Equipment is among the most economical on the market.

6 — Ajax Cup equipment was designed especially to meet railroad needs.

Samples and full information will be sent on request

AJAX

Drinking Cups and Cabinets

UNITED STATES ENVELOPE CO.
Springfield, Mass.
EASTERN CUP DIVISION:
Logan Drinking Cup Co. Div., Worcester, Mass.
WESTERN CUP DIVISION:
Pacific Coast Envelope Co. Div., San Francisco, Cal.

CAMEL Freight Car Door Fixtures

YOUNGSTOWN Corrugated Steel Freight Car Doors

CAMEL SALES COMPANY 332 South Michigan Avenue CHICAGO, ILLINOIS

"TIGER" BRONZE
ENGINE CASTINGS

STRONG TOUGH

ANTI-FRICTIONAL EASILY MACHINED

NATIONAL BEARING METALS CORP.
ST. LOUIS, MO.

New York, N. Y. Jersey City, N. J. Pittsburgh, Pa. Meadville, Pa. Portsmouth, Va. St. Paul, Minn.

3

CAR HEATING

Full 2-inch Steam area

2-inch End Valves

No steam-hose Renewals

2-inch Metallic Conduits

Low Maintenance

2-inch Couplers

VAPOR CAR HEATING CO., Inc.
Railway Exchange Chicago

BARBER
LATERAL-MOTION DEVICE

1,300,000 cars in service on over 60 Railroads and Car Lines

ROLLER SIDE-BEARINGS

Reduces Friction on Rails 15%
Lessens Wheel Flange Wear

STANDARD CAR TRUCK CO.
McCORMICK BUILDING CHICAGO

THE BUCKEYE STEEL CASTINGS CO.
COLUMBUS, OHIO

Truck Frames
Truck Bolsters
Including
Dalman Types
Draft Yokes
"D" Couplers
Major Couplers
Coupler Repair Parts in Stock

NEW YORK CHICAGO ST. PAUL LOUISVILLE

FLAGG . . . .

"FURNACE MALLEABLE"

300 WSP—Fittings

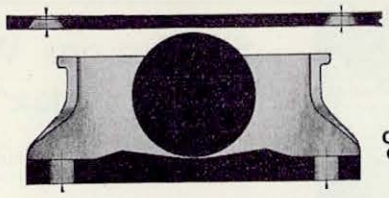
Meet the A. R. A. Specifications for Malleable Castings—1928.

Send for Booklet and sample. Address Dept. R. R.

STANLEY G. FLAGG & CO., Inc.

1421 Chestnut St., Philadelphia, Penna.

—Since 1854—



STUCKI SIDE BEARINGS

Manufactured by

A. Stucki Co.

Oliver Bldg., Pittsburgh, Pa.

Canadian Representative: The Holden Co., Ltd., Montreal, Can.

THE "FAIR" RAIL ANTI-CREEPER

THE P. & M. CO.

CHICAGO NEW YORK

Montreal London Paris Calcutta Sydney

New Journal Box Lid requirements per A.R.A. circular No. A-337-1930 are complied with in ASCO A. R. A. Special Torsion Spring Journal Box Lids.

Allegheny

Allegheny Steel Company, General Offices and Works, Brackenridge, Pa. New York, Milwaukee, Buffalo, Cleveland, St. Louis, Chicago, Los Angeles, Detroit

Sheets for Automobile Bodies · Metallic Furniture · Deep Drawn · Allegheny Metal · Acculoy · Electrical Sheets · Steel Castings · Seiber Tubes · Pipe

PAKRING METAL

THE STRONG, LONG LIVED WEARING METAL

LOCOMOTIVE CYLINDERS AND CYLINDER PARTS FINISHED AND ROUGH

The John Seaton Foundry Co.

The Locomotive Finished Material Co.

ATCHISON, KANSAS

WINE RAILWAY APPLIANCE CO.

TOLEDO, OHIO

Details of our products appear in following issues of Railway Age during 1931

January 3—February 7—March 7—April 4—May 2—June 6—July 4—August 1—or Railway Mechanical Engineer.

"V" Pilot and Pilot Fibrous Packings . . . . For Every LOCOMOTIVE AND SHOP Service

PILOT PACKING CO., INC.

CHICAGO NEW YORK SAN FRANCISCO

UNION STEEL CASTING COMPANY PITTSBURGH, PA.

Cast Steel Locomotive Cylinders, Carbon and Vanadium Cast Steel Locomotive Frames, Wheel Centers, Crossheads and General Miscellaneous Castings for Locomotive and Car Work.

A QUALITY PRODUCT

RESULT OF 40 YEARS EXPERIENCE

TUCOLITH

FLEXOLITH

CAR FLOORING

TUCO PRODUCTS CORP.

30 CHURCH STREET, NEW YORK

122 S. MICHIGAN AVE., CHICAGO

Hollow Iron Bars up to 14 ft. long—Solid to 18 ft. Hollow or solid Stays, plain, headed, or headed and threaded.

BUFFALO BRAKE BEAM CO.

—BRAKE BEAMS—

AUXILIARY SUPPORTS FOR BRAKE BEAMS

NEW YORK AND BUFFALO

Western

DUMP CARS Gives Complete Ballast Protection

WESTERN WHEELED SCRAPER CO.

Builders of Air Dump Cars

AURORA, ILLINOIS

EDGEWATER STEEL COMPANY

PITTSBURGH, PA.

Details of our products appear in the following issues of Railway Age during 1931:

May 16—June 13—July 4—Aug. 1, 8, 15, 22, 29—Sept. 5, 12.

Pittsburgh Spring & Steel Co.

1417 Farmers Bank Building, Pittsburgh, Pa.

Makers of Elliptic and Spiral **SPRINGS** of Every Description

of Carbon Vanadium and other alloy steels

Quality and Workmanship Guaranteed

Agencies

Washington, D. C. 824 Union Trust Bldg. — New York 2038 Grand Central Terminal — Chicago 1411 Fisher Bldg.

UNARCO

Asbestos and Rubber Packings for Railroad Use. Asbestos Insulating Materials

UNION ASBESTOS & RUBBER CO.

310 South Michigan Ave. Chicago, Ill.

PROFESSIONAL DIRECTORY

BATTEY & KIPP
INCORPORATED
Engineers
Complete Railroad Shops and Locomotive Terminals
Power Plants
Industrial Properties
231 So. La Salle St., Chicago

Robert W. Hunt Company
ENGINEERS
Inspection—Tests—Consultation
All Railway Equipment, Structures and Materials
General Office:
22nd Floor Insurance Exchange
CHICAGO
Offices in all principal cities

JOHN E. MUHLFELD
TRANSPORTATION ENGINEERING
25 Broad Street, New York

Pittsburgh Testing Laboratory
Pittsburgh, Penna.
Analysis . . Inspection . . Testing . . Research
Branch Offices in the Principal Cities

Your Professional Card

should appear in this section.

GET TOGETHER DEPARTMENT

Non-Display "Employment" Ads five cents a word. Count address in figuring cost. Box number requires ten words. All other classified Ads $4.00 an inch (1" x 1⅝") an insertion. Payable in advance. Railway Age, 30 Church St., New York, N. Y.

POSITION OPEN

IF you are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established twenty-two years. Send only name and address for details. R. W. Bixby, Inc., 102 Downtown Building, Buffalo, New York.

POSITION WANTED

DO you need a good live railway peddlar who knows practically all the Railroad Purchasing Agents and Mechanical Officers in the U. S. A.—he is at present employed but not averse to a change—if interested state your proposition to Box 854, RAILWAY AGE, 30 Church St., New York City.

FIRE protection Engineer Inspector, twenty years experience seeks connection corporation having large or scattered property. College education. Knowledge all insurance rating requirements. Location immaterial. Address Box 855, RAILWAY AGE, 30 Church St., New York City.

POSITION WANTED

OPPORTUNITY DESIRED with Railway Supply Company or Machine Tool Builder. Technical graduate with 12 years of practical railroading in mechanical department of large system, plus broad experience in railway supply marketing methods, desires position as sales engineer or as assistant to busy executive. Capable of conducting tests or handling all details including preparation of catalogs and all other publicity. Address Box 839, Railway Age, 30 Church Street, New York City.

SALES and SERVICE ENGINEER, technical graduate, with broad experience in development, manufacture, installation and sale of Power Saving and Lubricating Devices, Draft Appliances and miscellaneous railway equipment, desires position with railway supply company. Has specialized in design, manufacture and lubrication of railway journal bearings and is familiar with most recent developments in Lubrication Research. Address Box 856, RAILWAY AGE, 30 Church St., New York City.

EDUCATIONAL

SEND for Free Special Bulletin and learn how to increase your knowledge of practical railroad work and fit yourself for promotion. The Railway Educational Bureau, Omaha, Neb.

WANTED

Copies of the 1930 edition of the "Locomotive Cyclopedia." Will pay $3.50 for cloth or $5 for leather bound copies in good condition. Address Box 912, Railway Age, 30 Church Street, New York City.

Map of the

FOUR SYSTEM PLAN FOR THE EASTERN RAILWAYS

Submitted to the Interstate Commerce Commission on October 3, 1931, with an application for a modification of the commission's consolidation plan of December 9, 1929.

Four individual maps 10 by 5 inches on one sheet of stiff paper.

Price 15 cents.

The 20 System Consolidation Plan of the I. C. C., adopted December 9, 1931.

Price 25 cents.

Book Department
Simmons-Boardman Publishing Company
30 Church St. New York, N. Y.

RAILS

New and Relaying — Frogs — Tie Plates — Angle Bars—Cars of all types including Tank Cars, Hart Cars, Flat Cars, Box Cars—Railway Equipment—Used Car Parts—Steel Sheet Piling, both new and used.

HYMAN-MICHAELS COMPANY
New York, Los Angeles, Seattle, St. Louis
20 No. Wacker Drive Bldg. CHICAGO Paris, France
Pittsburgh, Houston, Portland, San Francisco

Index to Advertisers

A

Allegheny Steel Co. 38
American Arch Co., Inc. 23
American Brake Shoe & Foundry Co. 35
American Locomotive Co. 24
American Steel Foundries 11
Armco Culvert Manufacturers Association 13

B

Baldwin Locomotive Works, The 9
Barco Manufacturing Co. 41
Battey & Kipp, Inc. 39
Bethlehem Steel Co. 14
Bixby, Inc., R. W. 39
Buckeye Steel Castings Co., The 38
Buffalo Brake Beam Co. 38

C

Camel Sales Co. 37
Cardwell Westinghouse Co. 2
Carnegie Steel Co. 25
Caterpillar Tractor Co. 19
Classified Advertisements 39

E

Edgewater Steel Co. 38

F

Falls Hollow Staybolt Co. 38
Firebar Corporation 27
Flagg & Co., Inc., Stanley G. .. 37
Franklin Railway Supply Co., Inc. 22

G

General Electric Co. 30
General Railway Signal Co. 3
General Steel Castings Corp. .. 17
Get Together Department 39
Griffin Wheel Co. 4

H

Harbison-Walker Refractories Co. 23
Hunt Co., Robert W. 39
Hunt-Spiller Mfg. Corp. 29
Hutchins Car Roofing Co. 20
Hyman-Michaels Co. 39

I

International Nickel Co. 15

J

Johns-Manville Corp. 10

K

Kerite Insulated Wire & Cable Co., The 36

L

Lima Locomotive Works, Inc. .. 21
Locomotive Finished Material Co. 38

M

Magnus Co. 36
Micro Machine Co. 35
Muhlfeld, John E. 39

N

National Bearing Metals Corp... 37
National Malleable & Steel Castings Co. 28

P

P. & M. Co., The 38
Pantasote Co., The 36
Pilot Packing Co. 38
Pittsburg Spring & Steel Co. .. 38
Pittsburgh Testing Laboratory.. 39
Professional Directory 39

R

Railway Educational Bureau, The 39
Railway Steel-Spring Co. 32
Reading Iron Co. 33
Republic Steel Corp. 26

S

Simmons Boardman Publishing Co. 39
Standard Car Truck Co. 37
Standard Steel Works Co. 8
Stucki Co., A. 38
Superheater Co. 34

T

Tennessee Coal, Iron & R. R. Co. 12
Timken Roller Bearing Co., The 18
Tuco Products Corp. 38

U

Union Asbestos & Rubber Co. .. 38
Union Metal Products Co. 16
Union Steel Casting Co. 38
Union Switch & Signal Co... 6, 7, 42
U. S. Envelope Co. 37

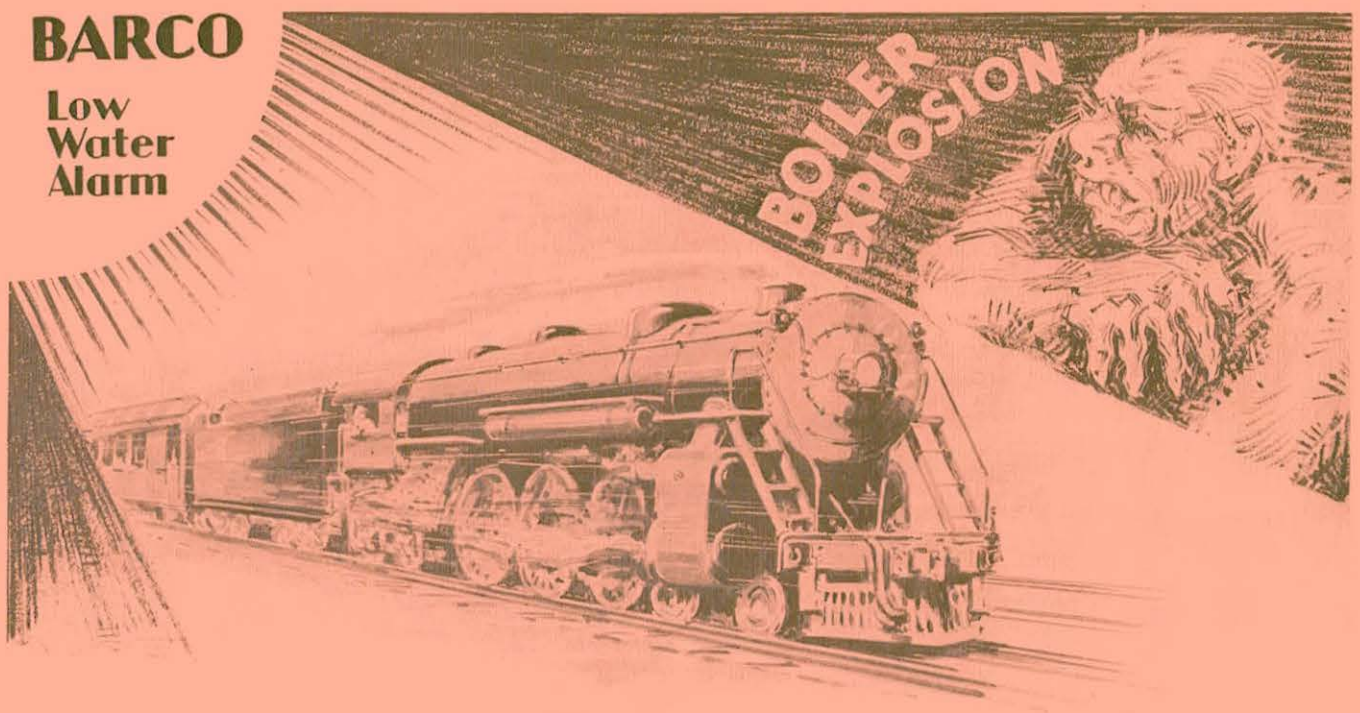
V

Vapor Car Heating Co. 37

W

West Disinfecting Co. 36
Western Wheeled Scraper Co. .. 38
Westinghouse Air Brake Co. ... 31
Wine Railway Appliance Co. ... 38

BARCO
Low Water Alarm



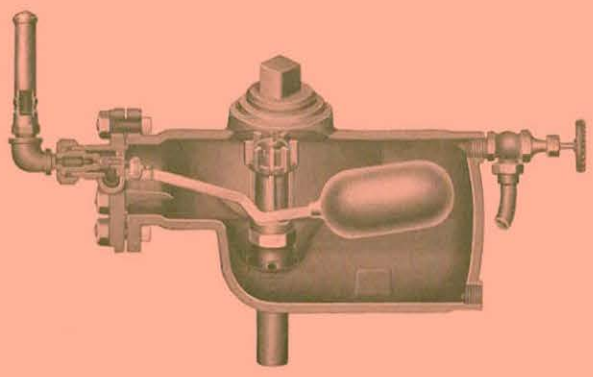
No longer any reason to fear

FROM the time the first locomotive was constructed railroads have been forced to operate under the menacing glare of that terrible spectre "boiler explosions."

Today there is no longer any reason to worry. The haunting fear of a visit from this disastrous monster loses all its terrors when your locomotives are protected with BARCO *Float* LOW WATER ALARMS.

You would not think of operating locomotives without safety valves. Why take chances with the possibilities of plugged water columns and false water levels.

The BARCO *Float* LOW WATER ALARM always functions when low water threatens. It will warn enginemen in plenty of time to prevent one of the worst disasters that can happen on a railroad.



The BARCO *Float* Low Water Alarm can be thoroughly tested, any time or any place, quickly and easily without subsequent adjustments.

You owe this protection to your Stockholders.

Barco Manufacturing Co.
1801 Winnemac Avenue, Chicago, Illinois
THE HOLDEN CO., LTD.
In Canada
Montreal—Moncton—Toronto
In Canada
Winnipeg—Vancouver

BARCO

Freight Train Costs Reduced!

The forty-seven railways with annual operating revenues above $25,000,000 made a notable improvement in freight train performance in the seven-year period, 1923-1929:

Gross tons per train	increased 21 per cent.
Freight train speed	" 22 " "
Gross ton miles per train hour	" 49 " "
Cost of freight train wages, fuel, supplies and enginehouse expenses per thousand gross ton miles	*decreased* 30 per cent.

". . . There is no surer way to save money on a railroad than to increase train load and thereby cut down the total number of trains operated. In this day of improved service to shippers with an increasing proportion of the freight tonnage moving in time or scheduled freight trains, the problem of increasing train loads becomes particularly severe because of the difficulty that heavy trains find in meeting schedules. In this connection, signals assist markedly because, by reducing delays and cutting down the time spent on passing tracks, they allow heavy trains more time in productive motion and make it that much easier to maintain schedules or avoid overtime. On the other hand, it is similarly possible to load scheduled trains more heavily than might otherwise be possible with their faster schedules. Under the conditions, therefore, it seems perhaps natural that signals should be expected to permit both faster and heavier trains and to further the economies that accompany that sort of operation."*

**Excerpt from "Improvement in Freight Train Performance by 47 Roads," Railway Age, August 15, 1931. Copy on request.*

▼ ▼ ▼

UNION SWITCH & SIGNAL COMPANY
Swissvale, Pennsylvania

GENERAL RAILWAY SIGNAL COMPANY
Rochester, N. Y.

78

Signals Aid Modern Motive Power to Produce More Ton-Miles Per Train-Hour